

*Wm J Merrill*

UNITED STATES OF AMERICA.

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REPORT

OF THE

ORGANIZATION AND PROCEEDINGS

OF THE

Union Pacific Railroad Co.

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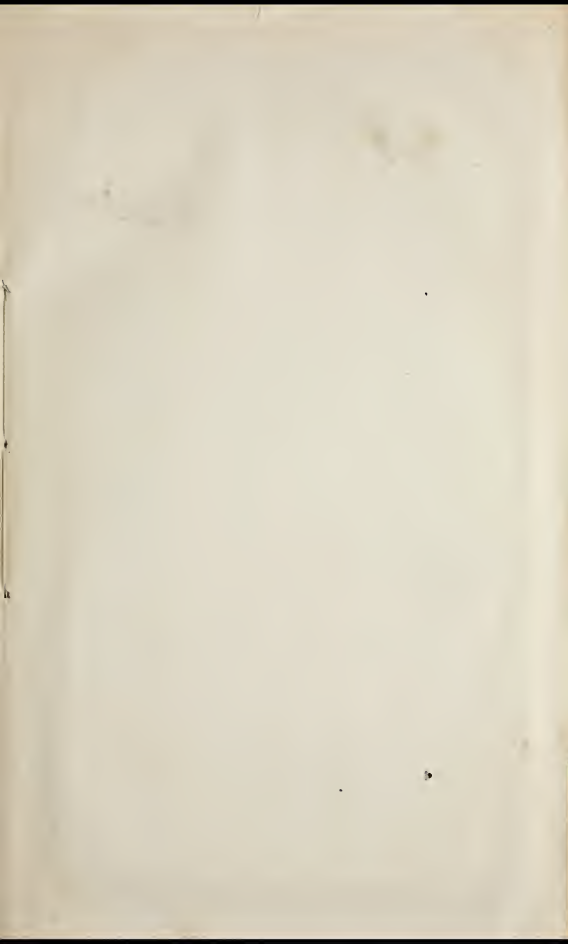
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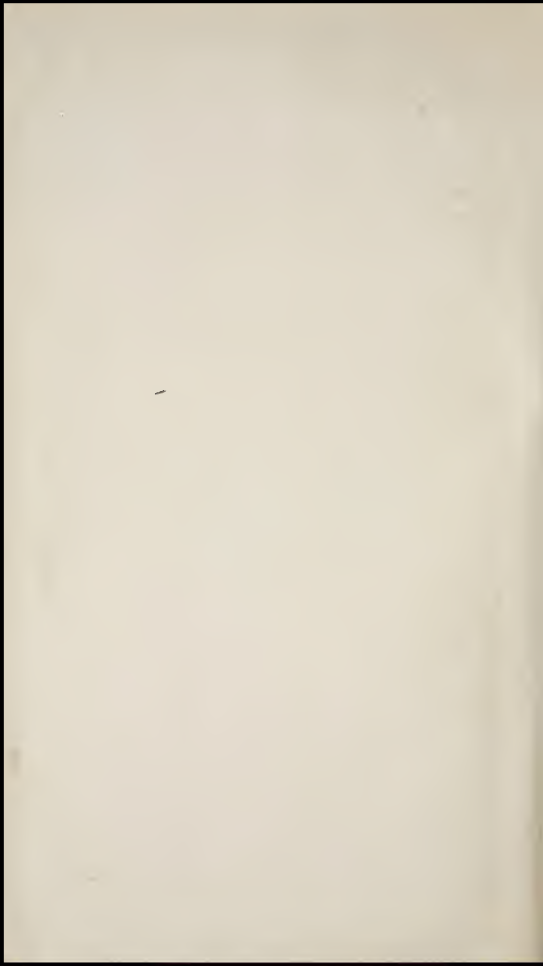
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1864.







# OFFICERS AND DIRECTORS

## OF THE

# Union Pacific Railroad Company.

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### OFFICERS.

GEN. JOHN A. DIX,	PRESIDENT.
THOMAS C. DURANT,	VICE PRESIDENT.
JOHN J. CISCO,	TREASURER.
HENRY V. POOR,	SECRETARY.

### DIRECTORS.

GEORGE OPDYKE,	NEW YORK.
JOHN A. DIX,	"
THOMAS C. DURANT,	"
WILLIAM B. OGDEN,	CHICAGO, ILL.
CORNELIUS S. BUSINELL,	NEW HAVEN, CONN.
BRIGHAM YOUNG,	GT. SALT LAKE CITY, UTAH.
JOHN J. BLAIR,	BELVIDERE, N. J.
S. C. POMEROY,	ATCHISON, KANSAS.
J. F. D. LANIER,	NEW YORK.
GEORGE T. M. DAVIS,	"
J. F. TRACY,	CHICAGO, ILL.
IL. V. POOR,	NEW YORK.
E. COOK,	DAVENPORT, IOWA.
AUGUSTUS KOUNTZE,	OMAHA, NEBRASKA.
AUGUST BELMONT,	NEW YORK.
EDWARD W. DUNHAM,	"
E. T. H. GIBSON,	"
ENOCH H. ROSEKRANS,	GLENS FALLS, N. Y.
LUTHER C. CLARK,	NEW YORK.
H. S. McCOMB,	WILMINGTON, DEL.
JOSEPH H. SCRANTON,	SCRANTON, PENN.
J. EDGAR THOMSON,	PHILADELPHIA, "
PICKERING CLARK,	NEW YORK.
A. G. JEROME,	"
CHARLES TUTTLE,	"
C. A. LAMBARD,	BOSTON, MASS.
GEORGE GRISWOLD,	NEW YORK.
JOHN E. HENRY,	DAVENPORT, IOWA.

### GOVERNMENT DIRECTORS.

SPRINGER HARBAUGH,	PITTSBURG, PENN.
T. J. CARTER,	NEW YORK.



## Standing Committees.

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### *Executive Committee.*

MAJ. GEN. JOHN A. DIX, . . . . .	<i>Chairman.</i>
THOMAS C. DURANT,	GEO. OPDYKE,
C. S. BUSHNELL,	A. G. JEROME,
GEO. T. M. DAVIS,	E. W. DUNHAM.

### *Finance Committee.*

J. F. D. LANIER, . . . . .	<i>Chairman.</i>
J. J. BLAIR,	E. T. H. GIBSON,
CHARLES TUTTLE,	C. A. LAMBARD,
J. E. THOMSON,	THOMAS C. DURANT.

### *Committee to Memorialize Congress.*

WILLIAM B. OGDEN, . . . . .	<i>Chairman.</i>
H. V. POOR,	H. S. McCOMB,
E. H. ROSEKRANS,	C. A. LAMBARD,
J. J. BLAIR,	J. H. SCRANTON.



## TO THE STOCKHOLDERS OF THE UNION PACIFIC RAILROAD COMPANY.

The proceedings of the Incorporators and Commissioners appointed by the charter of the Company for its organization, and of the officers of the Company in procuring subscriptions, the election of Directors by the subscribers to its capital stock, the action of the Directors after their election, the measures adopted by the Executive Committee for commencing the work of construction, and for pushing it on with all possible dispatch, have been printed for your information, together with the reports of the Engineers in regard to their examination of the different routes for the purpose of selecting the one most eligible.

The information presented on all these points will show you that no time has been lost, and no exertion spared, to respond to the wishes of Congress and the country, that this great national enterprise should be commenced and prosecuted with all practicable vigor.

The eastern termination of the road having been fixed by the President of the United States in the township of which the city of Omaha is a part, directions were given to break ground on the second of December last. These directions were carried into execution, and the commencement of the work was inaugurated with appropriate ceremonies.

The Directors of the Company have followed up these preliminary measures by contracting for rails, ties, locomotives and cars, and have commenced in earnest the work of grading. The expenditures for these objects, within this and the ensuing two months, including the work already done, will not fall short of \$800,000.

Five corps of Engineers have been organized, one of which is

employed in the construction of the road, and four others are ordered to the mountains to complete the preliminary surveys.

Your careful scrutiny of the recorded proceedings of the Company is earnestly invited, not only that you may be satisfied as to the strict conformity to the requirements of the Act of Congress providing for its incorporation, but with the zeal and determination with which the Directors have entered upon the work of construction.

JOHN A. DIX,  
*President.*

New York, April 2d, 1864.

# UNION PACIFIC RAILROAD COMPANY.

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Proceedings of the Commissioners of the UNION PACIFIC RAILROAD AND TELEGRAPH COMPANY, at their Convention, held at Chicago, Illinois, September 2d, 1862.

The Act of Congress incorporating the Union Pacific Railroad Company, made it the duty of the corporators, who were styled in said Act, "The Commissioners of the Union Pacific Railroad and Telegraph Company," to meet for organization at Chicago, at the call of the Commissioners named for the State of Illinois. The Commissioners from said State, pursuant to such authority, appointed the second day of September, 1862, at noon, and Bryan Hall, at Chicago, as the time and place for the first meeting of said Commissioners for the organization of the company.

Pursuant to such appointment, the Commissioners met at the time and place named, and organized, temporarily, by the choice of Major-General SAMUEL R. CURTIS, a commissioner from Iowa, as chairman, and Henry V. Poor, of New York, and J. R. ROBINSON, of California, as secretaries.

The following Commissioners, being a larger number than that required by the Act, to constitute a quorum, reported themselves in attendance, viz. :

*Maine.*—James Dunning, John M. Wood, Joseph Eaton.

*New Hampshire.*—Joseph A. Gilmore.

*Massachusetts.*—Edward R. Tinker.

*Rhode Island.*—Charles Fosdick Fletcher.

*Connecticut.*—Cornelius S. Bushnell.

*New Jersey.*—Ephriam Marsh, Charles M. Harker.



*New York*.—Royal Phelps, Wm. H. Ferry, Samuel R. Campbell, Alfred E. Tilton, John S. Kennedy, H. Carver, Joseph Field, B. F. Camp, Orville W. Childs, D. N. Barney, S. De Witt Bloodgood, Wm. H. Grant, Thomas W. Olcott, Samuel B. Ruggles, James B. Wilson.

*Pennsylvania*.—Joseph H. Scranton, Geo. W. Cass, Daniel J. Morrell, Robert Finney, John A. Green, E. R. Myre.

*Ohio*.—Amasa Stone, William Denison.

*Indiana*.—Charles Paine, Samuel Hanna, Jesse L. Williams, Jonas Votaw, Isaac C. Elston,

*Illinois*.—Wm. B. Ogden, Charles G. Hammond, Henry Farnam.

*Michigan*.—John D. Campbell, Charles A. Trowbridge, Ransom Gardner, Charles T. Gorham.

*Wisconsin*.—John Catlin, Levi Sterling, Geo. A. Thomson, Elihu L. Phillips.

*Minnesota*.—David Blakely.

*Iowa*.—Wm. F. Coolbaugh, Lucius H. Langworthy, Hoyt Sherman, Lyman Cook, Samuel R. Curtis, Lewis A. Thomas, Platt Smith.

*Missouri*.—Wm. M. McPherson, Armstrong Beatty, John Corby.

*Kansas*.—John C. Stone, Werter R. Davis, Josiah Miller.

*Nebraska*.—Gilbert C. Monell, Augustus Kountz, T. M. Marquette, Alvin Saunders.

*Colorado*.—John Evans.

*California*.—James T. Ryan, D. O. Mills, John R. Robinson.

*Appointed by the Secretary of Interior*.—Samuel J. Tilden, New York, Henry V. Poor, of New York, R. W. Latham, Dist. of Columbia, O. M. Wozencroft, of California, and W. D. Griswold of Indiana.

The Commissioners then proceeded to an election of permanent officers of the company, which resulted in the choice of Wm. B. Ogden, Esq., of Chicago, as President; Thomas W. Olcott, Esq., of New York, as Treasurer; and Henry V. Poor, Esq., of New York, as Secretary.

Upon motion of Mr. Bushnell, a Commissioner from Connecticut, a Committee of one Commissioner from each State and

Territory represented, and one from the number appointed by the Secretary of the Interior, was appointed to report an order of business for the Convention, viz. :

SAMUEL B. RUGGLES, of New York,  
*Chairman.*

John M. Wood, Maine,	Charles W. Woodman, N. H.
Edward R. Tinker, Mass.,	John Catlin, Wisconsin,
Chas. F. Fletcher, R. I.,	David Blakely, Minnesota,
C. S. Bushnell, Connecticut,	Wm. F. Coolbaugh, Iowa,
Ephraim Marsh, New Jersey,	John Corby Missouri.
G. W. Cass, Pennsylvania,	J. C. Stone, Kansas,
Amasa Stone, Ohio,	Alvin Saunders, Nebraska,
Samuel Hanna, Indiana,	John Evans, Colorado,
Charles Gorham, Michigan,	D. O. Mills, California.
Henry Farnam, Illinois,	
Samuel J. Tilden, appointed by the Secretary of the Interior.	

The Convention then adjourned to meet at the same place on Wednesday morning, September 3d, at ten o'clock.

Upon the re-assembling of the Convention, September 3d, the Committee, on the order of business, reported the following resolutions, which were adopted :

1st. That the speedy completion through the Territory of the United States, from the Atlantic to the Pacific, of a railway communication, affording adequate means of transit for persons and property has become an urgent necessity, not only in facilitating and augmenting the commerce, and developing the agricultural, mineral, and fiscal resources of our Continental Union, but preeminently in providing for the public defence, and perpetuating the political unity of the Atlantic and Pacific portion of the Republic.

2d. That the eastern division of this great Continental chain, extending from the Atlantic Ocean to the Missouri river, having already been completed by the capital and enterprise of companies incorporated by the several States, it was

eminently proper for the United States to incorporate a national company for completing the residue, reaching from the Missouri to the Pacific, with such aid from the national treasury and resources as seemed to be necessary; and that the country may well rely on the continuance of the same wise and paternal policy to expedite the efforts of the company to complete the work with all practicable dispatch.

3*d*. That it was peculiarly the duty of the nation which had assumed and exercised the right greatly to extend its original limits, by annexing the broad continental area between the Mississippi and the Pacific, and that, too—for the avowed purpose of protecting the commerce and territory of the Union from foreign interference,—to exert all its powers to secure the completion of a chain of communication so virtually important to both.

4*th*. That the denationalizing and treasonable effort now in progress to separate the slaveholding portion of the Union from the residue, could it be successful, would inevitably be followed by attempts still more flagitious, not only to detach the States on the Pacific, but even to separate the States on the Lakes and the Missouri from those on the Atlantic, and possibly from each other; that this audacious and abominable attempt to demolish the fabric of our National Government is secretly encouraged, if not openly approved, by at least a portion of the European world; and that the American people are now impelled by every motive of interest, duty, pride and honor, and every instinct of self-respect and self-preservation, to avert from themselves and their posterity a calamity so enormous.

5*th*. That the peculiar character of the pending rebellion, involving, if successful, the utter destruction of our National organization, and the consequent reduction of our hitherto powerful republic to the fragmentary and feeble condition of Central Europe, entailing on our Continent, for centuries to come, perpetual internal strife, if not interminable war, imperatively requires not only the utmost exertion of the military and naval power of the Government, but the immediate adoption of every measure

of civil administration for strengthening the bonds of our existing Union ; that nothing will contribute more permanently and effectually to that object than the binding, by an adequate chain of communication, our Pacific coast and the rich metalliferous regions of the interior to the large and powerful group of food-producing States on the Atlantic ; and that such a channel of intercourse, through this central portion of the continent, occupied by a populous and homogeneous race, enjoying easy and daily access to the two great oceans of the globe, would enable it not only to resist and defy any further attempt, either at home or abroad, to dismember our territory, but to exercise a commanding influence over the commerce, if not over the political destinies of the civilized world.

*6th.* That Congress has acquired a new claim to the gratitude of the people by delegating to an incorporated company, the duty and responsibility of constructing and managing this great work of national improvement, and in aiding it by the public credit, and grants of public lands ; that through this instrumentality the enterprise will enjoy the benefit of a permanent and steady direction, exempt from the uncertainty and delay of yearly appropriations, and especially from the vicissitudes of party conflicts and the demoralizing effects of party interference, permitting its directors to carry forward the work with activity, intelligence and honesty, on a continuous and systematic plan, undisturbed by any changes or vacillations in our public counsels, or any fluctuations in our public affairs.

*7th.* That the commissioners are profoundly impressed with the conviction that, under the exigencies of our present struggle for national existence, this great channel of intercourse, with its rich and invigorating streams of national commerce, and its unrivalled military facilities, is more than ever needed to preserve the American Union from political dissolution ; that the pressure of the pending war, so far from affording any reason for delaying its prosecution, shows only the more its urgent necessity ; that no time should be lost in securing its speedy completion by every reasonable effort, and that in a crisis so grave as the present, the company and the country may properly and

confidently rely on the Government promptly to afford to the work any further aid or facility which the virtual interest involved in its vigorous prosecution so evidently require.

8th. That the Commissioners will duly proceed to open books of subscription to the stock of the Union Pacific Railroad Company, in the manner and on the terms prescribed in the Act of Incorporation; that said books be opened on the first Wednesday of November next, at 12 o'clock at noon, in Portland, Maine; Concord, New Hampshire; Rutland, Vermont; Boston, Massachusetts; Providence, Rhode Island; Hartford, Connecticut; New York City; Trenton, New Jersey; Philadelphia City; Wilmington, Delaware; Baltimore, Maryland; Washington City; Columbus, Ohio; Indianapolis, Indiana; Chicago, Illinois; Detroit, Michigan; Milwaukee, Wisconsin; St. Paul, Minnesota; Burlington, Iowa; St. Louis, Missouri; Leavenworth, Kansas; Omaha, Nebraska; Denver City, Colorado; Salt Lake City, Utah; Cleveland and Cincinnati, Ohio; Buffalo and Albany, New York; Wheeling, Virginia; Louisville, Kentucky; Pittsburgh, Pennsylvania; Portland, Oregon; Dubuque, Iowa; Carson City, Nevada; San Francisco, California; to be opened in such localities therein as may be designated by or under authority of the President, Secretary, and Treasurer of this Board, or any two of them, and by such persons as they may in like manner appoint. The said books shall remain open at all said places at least two weeks; but if, in the judgment of the President, Secretary, and Treasurer, or any two of them, it shall prove impracticable to open or keep open the said books at any or either of the said places, such places shall be dispensed with.

A cash payment of ten per cent. on the amount of every subscription shall be made by a certificate of deposit to the credit of the Treasurer in some bank of good standing, to be approved by him; and, on receiving such certificate, he shall issue his receipt to the subscriber for the amount.

9th. That the security to be given by the Treasurer shall be his bond, conditioned for his faithfully accounting for all monies which may come into his hands, with two sureties to

be approved by the President and Secretary, for one hundred thousand dollars. The Treasurer shall be responsible only for due care in the safe-keeping of all the moneys which shall actually come into his hands. He shall keep on interest any funds which may accumulate in his hands, at the highest rate consistent with safety.

10th. That a committee, consisting of one member from each State and Territory, and one from the members at large, be appointed by the President to apply to Congress for any auxiliary legislation which may be necessary and proper to facilitate and expedite the construction of the work which the present Board was appointed to promote.

11th. That the President, Secretary, and Treasurer shall, *ex officio*, be members of each of the committees; and five members, exclusive of the officers of the Board, shall constitute a quorum of said committee, convened on due notice to all the members.

12th. That a committee of thirteen members be appointed by the President, which shall have advisory powers when the Board is not in session, which it may lawfully exercise.

13th. That when this Board adjourn it shall adjourn subject to the call of the President and Secretary, upon notice of not less than ten days, addressed by mail to each member, whose address shall be known to those officers.

Mr. Tilden, of New York, offered the following resolution, which was adopted :

*Resolved*, That a committee, consisting of five members, be appointed by the president to collect useful information in respect to the contemplated Pacific Railroad, the various routes proposed, and the agricultural, mineral, and topographical character of the regions travelled by such routes, and that all the members of this Board be requested to transmit to the said

Committee such information as they may possess or acquire on these subjects :

Mr. Cass, of Pennsylvania, offered the following resolutions, which were adopted :

*Resolved*, That the Treasurer is authorized and directed to pay the warrants drawn on him by the President, and countersigned by the Secretary, in sums of not less than fifty dollars each, which warrants shall only be drawn for the legitimate expense of the organization, which occur subsequent to the time of the meeting of the Commissioners ; but no expense incurred prior to date shall be paid, excepting for the advertising required by the act of incorporation.

*Resolved*, That it shall be the duty of the Secretary to keep an account of all warrants drawn on the Treasurer by the President, and countersigned by him, showing the date, purpose for which drawn, and the amount of said warrant ; he shall also have in his office the original bill or voucher, receipted, for which the warrant was drawn.

Mr. Ruggles offered the following resolution, which was adopted :

*Resolved*, That it be referred to a Committee of three members from New York, to be appointed by the President, to petition the Land Board of New York to exempt from canal tolls all the railroad iron carried on the canals of that State to be used in the construction of the Union Pacific Railroad.

The communication from the Legislature of the Territory of Colorado was then taken from the table, read, and ordered to be placed on file.

Mr. Robinson, of California, offered the following resolution, which was adopted :

*Resolved*, Unanimously, that the President of the Board of Commissioners is hereby instructed to petition Congress, imme-

diately after its re-assembling in December next, to amend the Pacific Railroad Company's act so that it shall read—"that the capital stock of said company shall consist of one million shares of one hundred dollars each, which shall be subscribed for and held in not more than two thousand shares by any one person."

On motion of Governor Evans, of Colorado, the following resolution was adopted :

*Resolved*, That the development of prosperous settlements in Colorado, Utah, and Nevada Territories, on the direct east and west line between New York and San Francisco, has furnished one of the greatest desiderata to the construction and maintenance of the Pacific Railroad, and encourages us in our efforts.

On motion, a resolution was adopted instructing the officers of the company to accept of the act of incorporation on behalf of the company, and file a certified copy of the proceedings of the convention in the Department of the Interior.

*Resolved*, That the thanks of the Board of Commissioners of the Union Pacific Railroad Company are hereby tendered to the Hon. Wm. B. Ogden, President of the Board, for the dignified, able, and courteous manner in which he has presided over their deliberations at this first meeting, so important to the interests of the country.

The Convention then adjourned without day.



## PROCEEDINGS

*Of the Officers of the UNION PACIFIC RAILROAD COMPANY, in the matter of opening the Books of Subscription to the Capital Stock of said Company.*

In obedience to the instructions of the Board of Commissioners of the Union Pacific Railroad Company, at their meeting in Chicago, on the 2d day of September, 1862, and succeeding days, and in compliance with the Act of Congress approved July 1st, 1862, establishing said company, the undersigned, President, Secretary, and Treasurer of said company, proceeded to the discharge of the duties appointed them, and caused books of subscription to the capital stock of said company to be prepared, in form and words following, to wit :

## UNION PACIFIC RAILROAD COMPANY.

*Books of Subscription to the Capital Stock of said Company.*

The parties whose names are subscribed hereto, each for himself, and not one for another, hereby agree to take and fill the number of shares set against their respective names, of the capital stock of the Union Pacific Railroad Company, and to pay thereon to the treasurer of said company, at the time of subscribing, the percentum on the amount of such subscription, and to make further payments on shares so subscribed by them, as may be called for by the directors of said company, to be hereafter chosen.

Having prepared the books of subscription as aforesaid, the undersigned officers of said company prepared a notification of the opening of said books, of which the following is a copy :

## UNION PACIFIC RAILROAD COMPANY.

BOOKS OF SUBSCRIPTION to the capital stock of the Union Pacific Railroad Company will be open on Wednesday, the 5th day of November, 1862, at noon, on terms and conditions therein set forth, at the place and with the persons following, at their respective places of business :

Albany, New York, Thomas W. Olcott.  
 Baltimore, Maryland, Thomas Swan.  
 Buffalo, New York, Dean Richmond.  
 Boston, Massachusetts, Samuel T. Dana.  
 Burlington, Iowa, Lyman Cook.  
 Cincinnati, Ohio, S. S. L'Houmedieu.  
 Columbus, Ohio, William Denison.  
 Chicago, Illinois, William B. Ogden.  
 Cleveland, Ohio, Amasa Stone.  
 Concord, New Hampshire, Joseph A. Gilmore.  
 Carson City, Nevada Territory, Wells, Fargo & Co.  
 Detroit, Michigan, Charles A. Trowbridge.  
 Dubuque, Iowa, Platt Smith.  
 Denver City, Colorado, George W. Clayton.  
 Hartford, Connecticut, G. P. Bissell & Co.  
 Indianapolis, Indiana, James M. Ray.  
 Louisville, Kentucky, James Guthrie.  
 Leavenworth, Kansas, Gen. J. C. Stone.  
 Milwaukee, Wisconsin, Ed. D. Holton.  
 New York City, New York, H. V. Poor, at the office of the  
 Secretary of the Company, 54 William street.  
 Omaha, Nebraska Territory, Alvin Saunders.  
 Portland, Maine, Charles E. Barrett.  
 Portland, Oregon, Wells, Fargo & Co.  
 Providence, Rhode Island, Walter T. Burgess.  
 Philadelphia, Pennsylvania, Jay Cook & Co.  
 Pittsburgh, Pennsylvania, Thomas M. Howe.  
 Rutland, Vermont, Henry H. Baxter.  
 St. Louis, Missouri, Wm. M. McPherson.  
 St. Paul, Minnesota, Parker Paine.  
 Salt Lake City, Utah, Brigham Young.

San Francisco, California, Wells, Fargo & Co.  
 Trenton, New Jersey, Philemon Dickerson.  
 Wilmington, Delaware, R. R. Robinson & Co.  
 Wheeling, Virginia, S. Brady.  
 Washington, District of Columbia, R. W. Latham.

By order of the Board of Commissioners of the Union  
 Pacific Railroad Company.

President.  
 HENRY V. POOR, Secretary.  
 THOMAS W. OLCOTT, Treasurer.

Dated at New York, the 25th day of October, 1862.

Which notification aforesaid they caused to be printed, and the publication of the same was requested in the following named newspapers, in nearly all of which said notification was inserted as an advertisement one or more times, to wit :

Albany, *Daily Journal*.  
 Baltimore, *Baltimore Patriot*.  
 Buffalo, *Buffalo Advertiser*.  
 Boston, *Advertiser, Journal, Transcript, Railway Times*.  
 Columbus, *State Journal*.  
 Cincinnati, *Gazette, Railroad Record*.  
 Cleveland, *Cleveland Journal*.  
 Chicago, *Tribune, Times, and Journal*.  
 Detroit, *Tribune*.  
 Dubuque, *Times*.  
 Hartford, *Courant*.  
 Indianapolis, *Journal*.  
 Louisville, *Journal*.  
 Milwaukee, *News*.  
 New York, *Tribune, Times, Post, Herald, Journal of Commerce, and Railroad Journal*.  
 Portland, Maine, *Daily Press*.  
 Philadelphia, *Press, Enquirer, U. S. Gazette, and Railroad Register*.

Providence, *Journal*.  
 Pittsburgh, *Gazette*.  
 St. Louis, *Democrat*, and *Republican*.  
 Salt Lake City, *Deseret News*.  
 Washington, *Republican*.  
 Concord, *New Hampshire Statesman*.  
 San Francisco, *Times*.

Accompanying a printed copy of the advertisement of the opening of the books, was the following note :

UNION PACIFIC RAILROAD COMPANY,  
 Secretary's Office, 54 William street,  
 New York, Oct. 30, 1862. }

TO THE PROPRIETORS OF THE

Gentlemen,—Enclosed please find advertisement of the opening of the books of subscription to the capital stock of the Union Pacific Railroad Company. The present organization, being only provisional, for the purpose of securing subscriptions to the capital stock to the amount of \$2,000,000, is without funds, or authority to contract any debt whatever. Certain charges will, however, be recommended to the Company to be organized by the stockholders for payment, and among them an advertisement of the opening of books of subscription, looking to the new company for payment. You will please give insertion of the enclosed, forwarding your bill for the same, to this office.

Very respectfully,

HENRY V. POOR, Secretary.

Dated in New York, this the 30th day of October, 1862.

With each book of subscription, printed and prepared in the manner and form above set forth, a letter of instruction was sent to each person to whom books of subscription to the capital stock was committed, in the form following, the blanks in the copy in each case being appropriately filled.

UNION PACIFIC RAILROAD COMPANY,  
Secretary's Office, 54 William street street, New York. }

WHEREAS, at a meeting of the Board of Commissioners of the Union Pacific Railroad Company, held at Bryan Hall, in the city of Chicago, on the second day of September, 1862, agreeable to the provisions of an act entitled An Act to aid in the construction of a railroad and telegraph line from the Missouri river to the Pacific Ocean, and to secure to the Government the use of the same for postal, military, and other purposes, the following resolution was adopted by said board, viz :

*Resolved*, That the Commissioners will duly proceed to open books for subscription to the Union Pacific Railroad Company, in the manner and on the terms prescribed in the act of incorporation. That said books be opened on the first Wednesday of November next, at 12 o'clock, at noon, in Portland, Maine; Concord, New Hampshire; Rutland, Vermont; Boston, Massachusetts; Providence, Rhode Island; Hartford, Connecticut; New York city; Trenton, New Jersey; Philadelphia city; Wilmington, Delaware; Baltimore, Maryland; Washington city; Columbus, Ohio; Indianapolis, Indiana; Chicago, Illinois; Detroit, Michigan; Milwaukee, Wisconsin; St. Paul, Minnesota; Burlington, Iowa; St. Louis, Missouri; Leavenworth, Kansas; Omaha, Nebraska; Denver city, Colorado; Salt Lake city, Utah; Cleveland, and Cincinnati, Ohio; Buffalo and Albany, New York; Wheeling, Virginia; Louisville, Kentucky; Pittsburgh, Pennsylvania; Portland, Oregon; Dubuque, Iowa; Carson city, Nevada; San Francisco, California; to be opened in such localities therein as may be designated by or under the authority of the President, Secretary, and Treasurer of the Board, or any two of them. If it shall prove impracticable to open or keep open said books, at any or either of said places, such plans shall be dispensed with. A cash payment of ten per cent. on the amount of every subscription, shall be made by a certificate of deposit to the Treasurer, in some bank of good standing, to be approved by him, and on receiving such certificate, he shall issue his receipt to the subscriber for the amount.

Now, therefore, the undersigned the President, Secretary, and Treasurer, of said Board, named in said resolutions, do, by authority vested in us, hereby designate and appoint the office or place of business

as the place at which books to receive subscriptions to the capital stock of said corporation shall be opened in said

agreeably to the provisions of the act and of the resolutions aforesaid; and the undersigned President, Secretary and Treasurer of said Board do, by virtue of the authority of said act and of the resolutions aforesaid, commit the charge, care and custody of said books opened for subscription to the capital stock of said corporation in said

who are hereby for and in behalf of said Board authorized to open said books for subscription to the capital stock of said company, agreeably to the provisions of said act, and of the resolutions aforesaid, at the place above named in said

on the first Wednesday of November, 1862, at 12 o'clock M., and to keep and maintain said books open for subscription to the capital stock of said corporation for at least two weeks from the said first Wednesday of November, 1862; and said

are hereby authorized to receive, in manner prescribed by said resolution, all certificates of deposits, checks, bills of exchange, for the moneys subscribed by the act to be paid by each person subscribing to the capital stock of said company, and to forward the same to the Treasurer of said company at Albany as fast as received, and upon closing the aforesaid books to forward them to said Treasurer or the Secretary of the company in New York, with a statement or account of their action in the premises.

Dated New York,

day of 1862.

WM. B. OGDEN, President.

THOMAS. W. OLCOTT, Treasurer.

HENRY V. POOR, Secretary.

## FORM OF A RETURN.

By the persons entrusted with the opening of the books,

To

We, the undersigned

to whom were committed the books to be opened in

for subscription to the capital stock of the Union Pacific Railroad Company, agreeably to the Act of Congress incorporating the same, and of the resolution of the Board of Commissioners of the Union Pacific Railroad Company held at Bryan Hall, Chicago, on the 2d day of September, 1862, hereby certify that said books of subscription were opened in said on the first Wednesday of November, 1862, at 12 o'clock M., and kept open by us for subscription to the capital stock of said company for at least two weeks continuously, from the said first Wednesday of November, 1862; and we further certify that subscriptions were made on the same capital stock of said company by the persons and amounts, as follows:

And we further certify that the following sums have been paid us by the parties subscribing, being ten per cent. on the amount of the subscription, viz.:

which sums, as aforesaid, we have forwarded to the Treasurer of the company at Albany, New York.

(Signed)

To be sworn to before some Commissioner of Deeds, Justice of the Peace, or Judge of the United States Courts.

And whereas, it was thought advisable to secure the assistance and co-operation of other parties to aid the person or persons to whom the books of subscriptions were committed, the undersigned filled the blanks in the letters of instruction respectively with the names of the following persons, to wit:

## UNION PACIFIC RAILROAD COMPANY.

PERSONS to whom Books of Subscription to the Capital Stock have been committed :

- Albany, New York, Thomas W. Olcott.  
 Baltimore, Maryland, Thomas Swan, Chauncey Brooks, Edward Wilkins.  
 Buffalo, New York, Dean Richmond.  
 Boston, Mass., Sam'l T. Dana, W. H. Swift, John Bertram.  
 Burlington, Iowa, Lyman Cook, H. T. Reid.  
 Carson City, Nevada Ter., Wells, Fargo & Co.  
 Cleveland, Ohio, Amasa Stone.  
 Chicago, Illinois, Wm. B. Ogden, Henry Farnam, C. G. Hammond.  
 Columbus, Ohio, William Dennison.  
 Concord, New Hampshire, Joseph A. Gilmore.  
 Cincinnati, Ohio, S. S. L'Hommedieu, Wm. H. Clement.  
 Detroit, Michigan, Chas. A. Trowbridge, R. N. Rice, Ransom Gardner.  
 Dubuque, Iowa, Platt Smith, L. H. Langworthy, Lewis A. Thomas.  
 Denver City, Colorado, John Evans, George H. Clayton, Warren Hussey.  
 Hartford, Connecticut, George P. Bissell, C. S. Bushnell.  
 Indianapolis, Indiana, James M. Ray, Isaac C. Elston, William D. Griswold.  
 Louisville, Kentucky, James Guthrie.  
 Leavenworth, Kansas, J. C. Stone, John Kerr.  
 Milwaukee, Wisconsin, John Catlin, E. D. Holton.  
 New York city, New York, H. V. Poor, Secretary of the Company, 54 William st.  
 Omaha, Nebraska Ter., Alvin Saunders, Gilbert C. Monell, Augustus Kountze.  
 Portland, Maine, Chas. E. Barrett, Joseph Eaton, James Dunning.  
 Portland, Oregon, Wells, Fargo & Co.  
 Philadelphia, Pennsylvania, Jay, Cook & Co., J. Edgar Thompson, Joseph Harrison.



Providence, Rhode Island, Walter S. Burgess, W. P. Blodgett.  
 Pittsburg, Pennsylvania, Geo. W. Cass, Thomas M. Howe,  
 Robert Finney.

Rutland, Vermont, Henry H. Baxter.

St. Louis, Missouri, William M. McPherson.

St. Paul, Minnesota, Parker Paine, David Blakely.

Salt Lake City, Utah, Brigham Young.

San Francisco, California, Wells, Fargo & Co.

Trenton, New Jersey, Pilemon Dickinson, Ephraim Marsh,  
 Charles M. Harker.

Wilmington, Delaware, R. R. Robinson & Co.

Wheeling, Virginia, S. Brady.

Washington, D. C., R. W. Latham.

The books of subscription aforesaid, the letter of instruction with a blank form of return, a printed copy of the notice of the opening of the books, and a printed copy of the list of persons to whom the books of subscription to the capital stock of said company were committed, were enclosed in an envelope and properly directed to the several persons named, and deposited in the Post-office, in the city of New York, postage paid, in due season to reach their place of destination in due time, and before the time mentioned therein for the opening of said books, with the exception of books prepared for the States of Oregon and California, and the Territory of Nevada, which were delivered to Wells, Fargo & Co. to be forwarded, and were forwarded by said Wells, Fargo & Co., the last books referred to, being prepared at an earlier day in consequence of the length of time required to reach their place of destination, and differ in some respects, though not materially, from books opened in other places, and were not accompanied by a blank form of return; and said President, Secretary, and Treasurer, on the seventeenth day of November, 1862, for the purpose of ascertaining whether an amount of stock had been subscribed, to wit, 2,000 shares, and ten per cent. of this amount paid to the Treasurer of the Company, which will make it obligatory on the part of the officers to call a meeting for choice of Directors, caused a notification to be addressed to the several persons to whom books of subscription of the capital stock of said Com-

pany had been committed, with the exception of the parties in the city of New York to whom books of subscription had been committed, in the words and figures following :

UNION PACIFIC RAILROAD COMPANY.

SECRETARY'S OFFICE, 54 WILLIAM ST. }  
New York, November 17th, 1862. }

To

Pursuant to the authority vested in them, by the act incorporating the Union Pacific Railroad Company, and by the commissioners of said company, at their meeting, held at Chicago, on the second day of September, 1862, the officers of the Company hereby direct, that the books of subscription to its capital stock, and committed to your charge, be closed after the same shall have remained open for subscription for at least fifteen days, exclusive of Sundays, from and after the fifth day of November instant, at twelve o'clock at noon, and you are requested to forward immediately to the office of the Secretary in this city such books, with a statement of the amount subscribed, and of your action in the premises agreeably to the letter of instruction accompanying the said books.

By order of the officers of said company.

HENRY V. POOR,  
Secretary.

Pursuant to the foregoing notifications and instructions, the books of subscription to the capital stock of said company were returned to the office of said company, they having first remained open for subscription to the capital stock of said company in each place designated, for at least fifteen days, as provided in the act incorporating said company, and upon said books twenty-two shares were subscribed to the capital stock of said company as follows :

Upon the books opened in the city of St. Louis, Missouri, five shares were subscribed by Wm. M. McPherson, and ten per cent. thereon paid into the treasurer of the company ; upon the books opened in the city of Milwaukie, Wisconsin, five shares

were subscribed by George A. Thomson, and ten per cent. thereon paid into the treasury of said company; upon the books opened in Omaha, Nebraska, twelve shares were subscribed by the following persons: by Augustus Kountze, five shares; by Francis Smith, one share; by John Rickly, one share; by O. P. Hosford, one share; by James G. Megeath, one share; George R. Smith, one share; John McCormick, one share; and W. J. Sweesey, one share; upon all of which ten per cent. of the amount was paid into the treasury of the company; and the aforesaid subscriptions are all that have, up to the date hereof, been made to the capital stock of said company. The books opened in the city of New York have remained opened for subscription to the capital stock of said company.

WILLIAM B. OGDEN, President.

HENRY V. POOR, Secretary.

Treasurer.

## UNION PACIFIC RAILROAD COMPANY.

New York, Sept., 1863.

It having been made to appear to the President and Secretary of the Board of Commissioners of the Union Pacific Railroad Company, that at least two thousand shares had in good faith been subscribed to the capital stock of said company, and that ten per centum thereon had been paid into the treasury of said company, by the following parties, to wit:

Names of Parties Subscribing.	No. of Shares sub. by each.	Amt. paid into the Trs'y of Co
Andrews, S. ....	20	\$2,000
Ahern, T. J. ....	20	2,000
Ashley, O. D. ....	20	2,000
Blood, H. ....	20	2,000
Basford, H. W. ....	20	2,000

Names of Parties Subscribing.	No. of Shares sub. by each.	Amt. paid into the Trs'y of Co.
Belmont, Aug.....	10	1,000
Bushnell, C. S.....	50	5,000
Broadhead, E. C.....	20	2,000
Bonner, G. T. & Co.....	20	2,000
Butler, E.....	10	1,000
Bartholemeu, George M.....	10	1,000
Boody, H. H.....	20	2,000
Barney, D. N.....	20	2,000
Blatchford, R. M.....	20	2,000
Butterfield, John.....	10	1,000
Blair, John J.....	20	2,000
Cass, George W.....	20	2,000
Clark, Edward.....	20	2,000
Clark, Dodge & Co.....	20	2,000
Cook, E.....	50	5,000
Curtis, N. B.....	20	2,000
Cisco, John J.....	20	2,000
Cheney, A. N.....	20	2,000
Crane, J. S.....	5	500
Crane, H. C.....	50	5,000
Cooper & Hewitt.....	20	2,000
Chittenden, S. B.....	10	1,000
Corning, Erastus.....	20	2,000
Campbell, Allen.....	5	500
Carver, B. F.....	10	2,000
Dix, John A.....	20	2,000
Duncan, Sherman & Co.....	20	2,000
Dehon, Clark & Bridges.....	20	2,000
Dunham, E. W.....	20	2,000
Davis, Geo. T. M.....	50	5,000
Dunham, James L.....	20	2,000
Durant, Thomas C.....	50	5,000
Durant, Wm. F.....	20	2,000
Dows, D.....	10	1,000
Durant, W. W.....	20	2,000
Dodge, William E.....	20	2,000
DeRongé & Dyott.....	20	2,000

Names of Parties Subscribing.	No. of Shares sub. by each.	Amt. paid into the Trs'y of Co.
Gibson, E. T. H.....	50	5,000
Grinnell, M. H.....	10	1,000
Gibson, C. D.....	10	1,000
Gray, S. M.....	10	1,000
Griswold, George.....	20	2,000
Gould, Charles.....	20	2,000
Gardner, Ransom.....	5	500
Harston, G. B.....	20	2,000
Harriman & Jerome.....	20	2,000
Hodges, G. W.....	20	2,000
Henry, J. E.....	50	5,000
Hosford, O. P.....	1	100
Haven, Franklin.....	10	1,000
Holliday, Ben.....	20	2,000
Jerome, A. G.....	20	2,000
Jerome, L. W.....	20	2,000
Jones, David.....	20	2,000
Kowalski, C.....	20	2,000
Ketchum, Morris.....	20	2,000
Kountze, Augustus.....	5	500
Lombord, H. J.....	20	2,000
Low, A. A.....	20	2,000
Lambard, C. A.....	20	2,000
McComb, H. S.....	10	1,000
Merriman & Bell.....	20	2,000
McCready, F. H.....	20	2,000
McAndrews & Wann.....	20	2,000
Maxwell, John D.....	10	1,000
McPherson, William M.....	5	500
McCormick, John.....	1	100
Megeath, James G.....	1	100
Nye, E.....	10	1,000
Ogden, William B.....	20	2,000
Opdyke, George.....	20	2,000
Pratt, G. W.....	20	2,000
Price, J. M.....	20	2,000
Prunyn, J. V. L.....	20	2,000

Names of Parties Subscribing.	No. of Shares sub. by each.	Amt. paid into the Trs'y of Co.
Poor, Henry V.....	10	1,000
Pomeroy, S. C.....	5	500
Qintard, G. M.....	20	2,000
Rosekrans, E. H.....	20	2,000
Rainsford, G. S.....	10	1,000
Richards, L. S.....	20	2,000
Richards, T. P.....	20	2,000
Richmond, Dean.....	20	2,000
Russell, C. H.....	20	2,000
Rickley, John..	1	100
Roberts, M. O.....	20	2,000
Scott, Thomas A.....	20	2,000
Scranton, J. H.....	50	5,000
Stebbins, H. J. & Sons .....	20	2,000
Smith, Samuel B.....	20	2,000
Smith, Platt.....	5	500
Sloan, Samuel.....	5	500
Smith, Francis.....	1	100
Smith, George R.....	1	100
Sweesy, William J.....	1	100
Tuttle, Charles.....	20	2,000
Thompson, J. Edgar.....	30	3,000
Tuttle, J. T.....	20	2,000
Train, George F.....	20	2,000
Tracy, J. F.....	20	2,000
Travers, W. R.....	20	2,000
Train, Willie D.....	20	2,000
Tilden, William.....	10	1,000
Thayer, Nathaniel.....	20	2,000
Tiffany & Co.....	10	1,000
Tilden, S. J.....	20	2,000
Taylor, Moses.....	20	2,000
Thompson, G. A.....	5	500
Van Schaick & Massett.....	20	2,000
Winslow, Lanier & Co .....	20	2,000
Wright, J. B.....	20	2,000

Names of Parties Subscribing.	No. of Shares sub. by each.	Amt. paid into the Trs'y of Co.
Williams & Guion.....	5	500
Watkinson, Robert.....	10	1,000
Williams, John M. S.....	20	2,000
Weed, Thurlow.....	10	1,000
Williams, N. L.....	20	2,000
Winston, F. S.....	5	500
Young, Brigham.....	5	500

And the said President and Secretary of said Company, agreeably to the provisions of the Act incorporating said Company, and the duties imposed upon them in said Act, appointed the twenty-ninth day of October, 1863, at noon, and the office of said Company, 54 William street, in the city of New York, as the time and place for the first meeting of the subscribers to the stock of said Company, and gave notice thereof in at least one newspaper in each State in which subscription books had been opened, at least thirty days previous to the day of meeting, of which notice, (with the exception of the notices published in the States of Oregon and California), the following is a copy, to wit:

## N O T I C E.

### UNION PACIFIC RAILROAD COMPANY.

Two thousand shares of the capital stock of the Union Pacific Railroad Company having been subscribed, and ten per cent. thereon paid to the Treasurer of said Company, a meeting of the subscribers to the stock of said Company, for the election of directors thereof, for the adoption of by-laws, and for the transaction of such other business as may come before the meeting, will be held at the office of said Company, 54 William street, in the city of New York, on the twenty-ninth day of October next, at noon.

WM. B. OGDEN, President,  
HENRY V. POOR, Secretary.

New York, Sept. 25th, 1863.

*Meeting of the Subscribers to the Capital Stock of the Union  
Pacific Railroad Company for choice of Directors.*

Pursuant to the appointment by the President and Secretary of the Union Pacific Railroad Company, of the time and place of the first meeting of the subscribers to the stock of said Company, such subscribers met at the office of the Company, 54 William street, in the city of New York, at noon, and organized by the choice of Hon. George Opdyke, one of their number, as Chairman, and Henry V. Poor, one of their number, as Secretary.

Mr. PRUYN offered the following resolutions, which were adopted :

*Resolved*, That in pursuance to the authority conferred by the charter in this respect, the stockholders now attending this meeting, either in person or by proxy, do proceed to elect thirty Directors of this Company.

*Resolved*, That the Board of Directors shall have power to fill all vacancies which may occur in their number, by death, resignation, or otherwise.

*Resolved*, That, until otherwise ordered, the affairs, property, and business of the Company, except so far as the same are exclusively vested in the stockholders by the charter, shall in all respects, be conducted, managed, and controlled by the Board of Directors as they shall deem most expedient for the interests of the Company.

Mr. CASS offered the following resolutions, which were adopted :

*Resolved*, That the Inspectors named in the act of incorporation open the polls for the election of a Board of Directors at this office, at quarter past two P. M. this day, and keep the same open one hour, and until all stockholders present and offering to vote shall have voted.

*Resolved*, That the Inspectors of the election, so soon as the



votes are counted, notify each member elected to meet at the office of the Company in the city of New York, at noon, to-morrow, for the purpose of organizing the Board of Directors, and the transaction of business, and that the Inspectors, at the same time, make and deliver a certificate, under their hands, of the names of the Directors elected at the meeting.

*Resolved*, That a Committee of five be appointed by the Chairman to prepare a system of by-laws, rules and regulations, for the needful and proper regulations of the stock, property, estate, and effects of the Company, and of all matters whatsoever which may appertain to the concerns of the Company not inconsistent with the act of incorporation, and report the same to an adjourned meeting of the stockholders, to be held for that purpose in the city of New York to-morrow, P. M.

Messrs. Ogden, Rosekrans, Cook, Pruyn, and Durant were appointed Committee on By-Laws. The stockholders then voted to take a recess till one-quarter past two o'clock P. M.

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New York, Oct. 29, 1863.

The subscribers to the capital stock of the Union Pacific Railroad Company re-assembled, according to adjournment, at one-half past two P. M.

Mr. Cass offered the following resolution, which was adopted :

*Resolved*, That the Directors this day elected shall hold their office for such period only as may be fixed by the by-laws hereafter to be adopted.

The stockholders then proceeded to ballot for Directors of the Company. The Tellers reported that the whole number of shares entitled to vote, as shown by the poll list, was 2,177; and the whole number of votes taken, 2,007, and annexed a statement, showing the persons voted for, and the number of votes which each received, to wit :

Wm. B. Ogden,	2,007	A. G. Jerome,	1,556
George Opdyke,	2,007	Abiel A. Low,	2,007
John A. Dix,	1,937	George T. M. Davis,	1,937
Nathaniel Thayer,	2,007	Ebenezer Cook,	1,937
C. S. Bushnell,	1,937	J. Edgar Thomson,	2,007
Thomas C. Durant,	1,937	August Belmont,	1,626
J. V. L. Pruyn,	2,007	J. F. Tracy,	1,556
E. W. Dunham,	1,977	L. C. Clark,	1,556
Pickering Clark,	1,556	John E. Henry,	1,556
C. A. Lambard,	2,007	Henry V. Poor,	1,556
E. T. H. Gibson,	1,937	E. H. Rosekrans,	1,556
Joseph H. Scranton,	2,007	H. S. McComb,	2,007
Chas. Tuttle,	1,556	Augustus Kountze,	1,937
J. F. D. Lanier,	2,007	Morris Ketchum,	381
John J. Blair,	2,007	Franklin Haven,	40
George Griswold,	1,937	Erastus Corning,	70
S. C. Pomeroy,	1,947	Thomas A. Scott,	70
George W. Cass,	451	George A. Thomson,	70
John M. S. Williams,	471	Moses Taylor,	70
Wm. M. McPherson,	381	W. S. Wilson,	70
John W. Brooks,	381	H. J. Lombard,	70
Allen Campbell,	451	S. J. Tilden,	70
Watts Sherman,	451	Wm. E. Dodge,	70
Dean Richmond,	451	Samuel Hanna,	70
John Butterfield,	451	D. N. Barney,	70

Whereupon the following persons were declared elected Directors of the Company, to wit:

New York City,	George Opdyke.
" "	John A. Dix.
" "	Thomas C. Durant.
" "	E. W. Dunham.
" "	Pickering Clark.
" "	E. T. H. Gibson.
" "	J. F. D. Lanier.
" "	A. G. Jerome.
" "	Abiel A. Low.
" "	George T. M. Davis.
" "	August Belmont.
" "	L. C. Clark.
" "	Chas. Tuttle.
" "	Henry V. Poor.

New York City,	George Griswold.
Albany, New York,	J. V. L. Pruyn.
Glens Falls “	E. H. Rosekrans.
Chicago, Illinois,	William B. Ogden.
“ “	J. F. Tracy.
Boston, Massachusetts,	Nathaniel Thayer.
“ “	C. A. Lambard.
New Haven, Connecticut,	C. S. Bushnell.
Scranton, Pennsylvania,	Joseph H. Scranton.
Philadelphia, “	J. Edgar Thomson.
Davenport, Iowa,	Ebenezer Cook.
“ “	John E. Henry.
Wilmington, Delaware,	H. S. McComb.
Omaha, Nebraska,	Augustus Kountze.
Belvidere, New Jersey,	John J. Blair.
Atchison, Kansas,	S. C. Pomeroy.

The Committee on By-laws submitted, through Mr. Cook, a series of articles which were amended and adopted, as follows :

## BY - LAWS.

ADOPTED, OCTOBER 30TH, 1863.

### ARTICLE I.

#### *Meeting of Stockholders.*

The annual meeting of the stockholders shall be held on the first Monday in October, in each year, at the office of the Company, in the city of New York. Notice of the time of each meeting, signed by the President and Secretary, shall, each year, be published in two daily newspapers in the city of New York, and also in newspapers published in each of the follow-

ing named cities, to wit: Boston, Philadelphia, Chicago, Pittsburgh, St. Louis, and Washington, at least thirty days previous to the time designated for each meeting. Special meetings may be held at any time by order of the Board of Directors, and shall be whenever stockholders owning one-fourth part of the capital stock shall, in writing, make an application therefor to the President, stating the object of such special meeting. Notice of such special meetings shall be published in the same manner as heretofore directed; and, in addition, such notices shall state the object of such meetings; and the business of all special meetings shall be confined to the objects stated in such notices, at all meetings. Stockholders may vote by person or by proxy, and shall be entitled to one vote for each share of stock standing in their respective names.

## ARTICLE II.

### *Election of Directors.*

The Directors elected at the first election shall hold their office until the annual meeting on the first Monday of October, 1866, and until their successors are duly elected and qualified; and the Directors thereafter elected by the stockholders shall hold their office for three years, and until their successors are duly elected and qualified. All elections of Directors shall be by ballot. Prior to each election, the Board of Directors shall appoint a committee of three of their own number, who shall preside at and be inspectors of said elections; shall be the judges of the qualifications of voters, shall prescribe rules and regulations for voting, and shall make a certificate of the result of the elections, which certificate shall be entered in full upon the minutes of the proceedings of the Board of Directors. Should any vacancy occur in the Board of Directors by death, resignation, or otherwise, the Board of Directors shall have power to fill the vacancy for the balance of the time.

## ARTICLE III.

### *Officers of the Company.*

In addition to a President, Vice-President, Secretary, and Treasurer, as provided for by the charter, there shall be also an

executive committee, consisting of six members of the Board, to be elected by ballot, by the Board of Directors, and the President, who shall be chairman of said committee. In the absence of the President, the Vice-President shall be a member of said committee, and preside at the meeting. The President and Vice-President shall hold their respective offices during the continuance of the term of the Board of Directors which elects them. All other officers shall hold their office during the pleasure of the Board of Directors.

#### ARTICLE IV.

##### *Board of Directors.*

The Board of Directors, at their first meeting after every triennial election, shall elect, by ballot, from their own number, a President and Vice-President, and may also elect a Secretary and Treasurer, or may continue the then incumbents in office by resolution.

The Board of Directors shall have the whole charge and management of the property and effects of the Company, and they may delegate power to the executive committee to do any and all acts which the Board is authorized to do, except such acts as by law, or these By-Laws, must be done by the Board itself. The Board shall have power, in the absence of the President and Vice-President, to appoint a chairman *pro tempore*, and during the prolonged absence of the President or other officer, to appoint substitutes *pro tempore*. A majority of all the members is necessary to a quorum, but less than a quorum may adjourn from time to time. The Board of Directors may prescribe the duties and power of the Secretary, Treasurer, Engineers, and all subordinate officers and agents, fix the salaries of all officers of the Company, make all needful rules and regulations, not inconsistent with the charter, for the transfer of the stock of the Company, issuing of certificates of stock, keeping the records and accounts of the Company, the management and disposition, in particular, of the stock, property, estate, and effects of the Company, and the construction and operating of the railroad and telegraph of the Company.

At each annual meeting of stockholders the Board of Directors shall cause to be presented to said meeting a general state-

ment of the affairs of the Company. The Board of Directors shall have power to delegate authority to do and perform specific acts, not inconsistent with the charter, to special committees to be appointed by the Board, or presiding officer, at the option of the Board.

#### ARTICLE V.

##### *President and Vice-President.*

The President shall preside at all meetings of the Board of Directors, when present; shall have a general care, supervision and direction of the affairs of the Company and employees, under the direction of the Board of Directors, and shall have such other powers and perform such other duties as the Board of Directors may from time to time confer or prescribe. The Vice-President, in the absence of the President, shall preside at the meeting of the Board, and may also do and perform any other act which the President might do were he present; and he shall have such other powers and perform such other duties as may be conferred upon him, or be prescribed by the Board of Directors from time to time.

#### ARTICLE VI.

##### *Executive Committee.*

The Executive Committee shall have and exercise, by a majority of its members, all the powers and authority which from time to time may be delegated to said Committee by the Board of Directors. A record of all the proceedings shall be kept in a book for that purpose by the Secretary and certified by him, which shall be read at the next ensuing meeting of the Board of Directors.

The Secretary of the Company shall call meetings of this Committee on the requisition of any one of its members.

#### ARTICLE VII.

##### *Auditing of Accounts.*

At each annual meeting of the stockholders, an auditing committee shall be appointed, in such a manner as may be de-

cided, to examine and audit the accounts of the preceding year.

#### ARTICLE VIII.

##### *Amendments of By-Laws.*

These By-Laws may be altered or amended at any annual meeting of the stockholders, or at any special meeting, when notice of such amendment, or amendments shall have been given.

Mr. Cass offered the following resolutions, which were adopted :

*Resolved*, That the seal of the Commissioners be the seal of the Company, until changed by the Board of Directors, which they are hereby authorized to do at any time.

The meeting then adjourned *sine die*.

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#### MEETING OF DIRECTORS OF THE UNION PACIFIC RAILROAD COMPANY.

Oct. 30, 1863.

The Directors of the Union Pacific Railroad Company met this day, at the office of the company, 54 William street. The following Directors were present, viz. :

Messrs. Thomas C. Durant, Pickering Clark, E. T. H. Gibson, A. G. Jerome, Chas. Tuttle, Henry V. Poor, E. H. Rosekrans, William B. Ogden, C. A. Lambard, Cornelius S. Bushnell, Joseph H. Scranton, E. Cook, John E. Henry, H. S. McComb, Augustus Kountze, John J. Blair, and Springer Harbaugh, and T. J. Carter, Government Directors.

The Board then organized, by the choice of Major-Gen. John A. Dix as President, Thomas C. Durant as Vice-President, John J. Cisco as Treasurer, and Henry V. Poor as Secretary.

Mr. Cook, of Iowa, offered a series of resolutions, which were severally read and adopted, to wit :

*Whereas*, by Article 4 of the By-Laws of the Company, adopted by the stockholders on the 30th day of October, 1863, authority is given the Board to delegate power to the Executive Committee, and whereas, on account of the large number of directors, and their residence in various States, great difficulty exists in the way of obtaining a quorum at short notice ; therefore :

*Resolved*, That the Executive Committee shall possess and exercise, by a majority of all its members, all the powers and duties of the Board of Directors, at all times when the Board shall not be in session, except such powers as by the charter or By-Laws of the Company must be exercised by the Board itself.

*Resolved*, That the President, or, in his absence, the Vice-President, shall have power to call meetings of the Board at any time, and shall do so whenever five of the Directors in writing shall request it. Notice of the meeting shall be given by the Secretary to each Director.

*Resolved*, That a Committee of seven be appointed, to be called the Committee on Finance, to devise plans for the raising of money to prosecute the work ; the Committee to report to, and their acts to be subject to, the Board of Directors, if in session, or, otherwise, to the Executive Committee.

*Resolved*, That a Committee of seven be appointed to prepare a memorial to Congress for amendments of the charter, and that such committee report such memorial to the Executive Committee for their approval.

*Resolved*, That no money in the hands of the Treasurer shall be paid out by him, except upon the order of the Board of Directors or Executive Committee, or under such rules and regulations as may be made by the Board or Executive Committee.

On motion of Mr. Ogden, of Illinois, the following form of certificate was adopted :



No.

Shares.

## UNION PACIFIC RAILROAD COMPANY.

SHARES \$1,000 EACH.

*United States of America.*

Be it known that  
 of  
 to  
 entitled  
 shares of the capital stock of  
 the Union Pacific Railroad Company, on which has been paid  
 one hundred dollars on each share ; which shares are transfer-  
 able on the books of the Company, at its office in the city of New  
 York, or at such transfer agency as the Company may hereafter  
 establish, at the pleasure of the holder in person, or by  
 attorney, on the surrender of this certificate, and payment of all  
 instalments then due.

Witness, the signature of the Secretary and Treasurer.  
 New York, 186

Treasurer.

Secretary.

The following Directors were elected to constitute the Stand-  
 ing Committees, to wit :

*Executive Committee.*

The President, Gen. Dix, Chairman.

Messrs. Durant,  
 Jerome,  
 Opdyke,

Bushnell,  
 Dunham,  
 Davis.

*Finance Committee.*

Messrs. Lanier,  
 Blair,  
 Tuttle,  
 Durant.

Gibson,  
 Thomson,  
 Lambard,

*Committee to Memorialize Congress.*

Messrs. Ogden,	McComb,
Poor,	Lambard,
Rosekrans,	Seranton,
Blair.	

Mr. OGDEN, from a committee appointed to report a plan of action for the future operations of the Company, offered the following resolutions, which were adopted :

*Resolved*, That no further call shall be made upon existing stockholders without the consent of a majority of the whole number of the Executive Committee ; and further, that calls, when made, shall not exceed 10 per cent. at any one call, and at least 30 days notice shall be given by publication in some one or more of the leading newspapers in New York city, and a notice mailed to each subscriber whose residence is known, before such calls shall become due and payable, and that calls shall not be made oftener than once in four months.

*Resolved*, That in all contracts for materials and construction that may be made prior to the obtaining the desired legislation of Congress amending the Company's charter, a clause shall invariably be inserted reserving the power in this Board, its Executive Committee, or any officer of the Company duly authorized, to terminate such contract at any time when they shall think proper, without claims for damage on the part of the contractors for any material not delivered, or work not actually done.

*Resolved*, That the Treasurer be authorized, with the approval of the chairman of the Executive Committee, to place the funds of the Company in some safe depository, so as to be accumulative, and at all times applicable to meet the periodical demands on the treasury for the purposes of the Company.

*Resolved*, That the Executive Committee be instructed to cause a full examination, by eminent engineers, of the country

between the Missouri river and the one hundredth degree of longitude, and the mountain regions between the eastern base of the Rocky Mountains and the State of California, with a view to secure the best and most practicable route for the great national highway.

*Resolved*, That so soon as the Eastern terminus of this Company's railway be legally fixed by the President of the United States, at the western boundary of the State of Iowa, the Company will proceed at once to grade the track for the Union Pacific Railroad Company, from the Missouri to the valley of the Platte River, the present Fall and Winter, with a view to preparing it for track laying in the early Spring, and that an ample corps of engineers shall be vigorously set to work at once, to make all necessary surveys, with a view to an early and definite location of the entire line of the road from the Missouri River.

*Resolved*—further, That the Executive Committee be and are hereby authorized to take the necessary steps to procure material, in accordance with the instructions of this Board, for the construction of the first one hundred miles of this Company's road.

Mr. CARTER offered the following resolution, which was adopted :

*Resolved*, That the Board of Directors shall hold regular meetings, at their office in New York, on the first Wednesday of January, April, June, and October, when the officers and committees shall respectively report their acts and proceedings for consideration and approval; and that the Secretary be instructed to furnish each Director with a copy of this resolution, personally or by mail; the same to be due notice to each Director, of all such meetings.

Brigham Young, of Utah, was elected Director, in place of Nathaniel Thayer, resigned.

Mr. Durant laid before the meeting the following communication, which was read, and ordered on file :

New York, Oct. 30, 1863.

TO THE BOARD OF DIRECTORS OF THE

UNION PACIFIC RAILROAD COMPANY :

Gentlemen,—I beg to congratulate you upon the harmonious organization of your Company, and to place at your disposal information relative to the character of the country through which your road is to pass, the result of explorations made by competent engineers, at private expense, and at various times during the past ten years. Much of this information is necessarily of a negative character, but is not the less important, nearly eighteen months having been spent in the mountain passes in its acquisition.

I beg also to inform you that in August last, becoming convinced that the subscriptions to the stock of your Company would not reach the amount required by law for election of Directors in time to get together a competent and efficient corps of engineers before the season was too far advanced, I gave instructions to P. A. Dey, Esq., to proceed at once to organize parties for immediate service, and, on the 19th of September, sent them into the field to survey four lines from the western borders of the State of Iowa to some common point in the Platte Valley, for the purpose of ascertaining facts in regard to location, a copy of which orders are herewith submitted, marked Nos. 1 and 2.

Subsequently, fearing it would be impossible to accomplish much this season, if more time was lost, and that there would be a delay of six months, at least, if nothing was done until after the Company was organized, and in view of the importance of a more definite knowledge of some of the difficulties to be surmounted in building a road through the mountains, at an elevation which has, as yet, only been ascertained by means of barometrical observations, I determined, if within the range of possibility, to run a level, and obtain a profile of two or more of the passes this fall. I accordingly instructed Mr. Dey to dispatch a party of engineers to the valley of Lodge Pole Creek, where the same leaves the mountains at the foot of the Black

Hills, there to commence surveying a line through Cheyenne Pass into the Laramie Plains, thence near the base of the Medicine Bow Mountains to Bridger's Pass, through Bridger's Pass to the plains beyond, striking Bitter Creek Valley; this being all that a single party of engineers could reasonably be expected to accomplish even under the most favorable circumstances. I also instructed Mr. Dey to make arrangements to put another party in the field, commencing near Utah Lake, running up the valley of the Timpanagos River, through the Wahsatch mountains, eastward, to meet, in Bitter Creek Valley, the party last named, suggesting that he might be able to make the arrangement with Governor Brigham Young, the details of which will be seen in paper herewith submitted, marked Instructions No. 3 and No. 4. And I would here state, that in reply to my telegram to Gov. Young, asking if he could furnish a party to make survey, I paying the expense, I received immediate answer: "I will furnish a party and engineers, if you wish, and pay the expenses." You will perceive there is now in the field four parties of engineers from whom we may expect to receive very full reports. The four lines first named should be completed in two weeks, if the weather is favorable.

The line through Cheyenne and Bridger's Passes will not occupy a long time, if the party meet with no serious obstacles or interruption from the Indians. It is here that the information derived from the examinations made by Gen'l G. M. Dodge, and those made last year by Mr. Dey who was sent out by the committee appointed by your Board of Commissioners, prove of great value, as the present party will avail themselves of the examinations of those gentlemen, and run the lines first, which they found most practicable. In order to save time, they have gone by stage, and have arranged for transportation to be furnished them from some of the stations of the Stage Company.

I applied to the President for an order on the commander of the Post at the mouth of the Cache a Poudre, or at the Fort near Medicine Bow Mountains, for military escort, provisions, &c., to be used, if found necessary, for the safety of the party, but was unable to obtain the same on the ground that there was no authority for the Government to aid in making the

surveys. Nothing daunted, the party in charge of B. B. Brayton, Esq., determined to lose no time, and have pushed on without delay, trusting to their own resources, not only for protection, but for provisions or transportation, in case they lose what they take with them, by Indians, snows, or other casualties. I have no fears, however, for their safety, as I learn by telegraph from parties residing west of Julesburgh, that provisions can be had at that point, and the mountaineers employed as guides are well versed in all the wiles of the Indians.

Another and very important matter for your consideration is the investigation of the coal fields and iron ores which the engineers report to exist to a vast extent in the vicinity of Medicine Bow Mountains and the Black Hills.

Believing this to have an important bearing on the location of the road, I have despatched Prof. J. T. Hodge, an experienced geologist, to make an examination as to the extent and character of said coal fields, iron ore, limestone, &c., and their proximity to each other, and the line of road being surveyed. A copy of whose instructions are herewith submitted, numbered 5.

All of the above-named parties understand that they are employed by individuals, and not by the Union Pacific Company. I would recommend that your Company continue their services for the present.

The accompanying map of the Missouri River, showing depth of water, sand, &c., for a great distance, is placed at your disposal.

Very respectfully,

THOS. C. DURANT.

The following are the instructions referred to in Mr. Durant's communications :

**No. 1.**

New York, Sept. 19th, 1863.

PETER A. DEX, Esq.,  
Engineer :

Dr. Sir,—You are hereby directed to proceed to the Missouri river and examine four routes to the north bend of the Platte.

The first, starting at or near the mouth of the Platte and following up the valley.

The second, from Bellevue, following up the west branch of Pappillion Creek, and reaching the Platte by the most practicable route uniting with the first.

The third, starting from Omaha city and running as near west as practicable.

The fourth, from some point at or near the mouth of the Boyer river; these four routes to make a common point, or reach some township or section line running north and south common to all.

The surveys to particularly mark the character of streams crossed, and the material, such as timber, gravel, and stone that may be serviceable for construction.

You will call upon John E. Henry, Esq., Davenport, for funds necessary for the above.

Yours, &c.,

THOS. C. DURANT.

## No. 2.

New York, Oct. 2, 1863.

P. A. DEX, Esq.,  
Engineer:

Dear Sir,—Referring to instructions of Sept. 19th, marked No. 1, you will proceed to examine and run a line upon any route between the points designated, provided you are of the opinion that any such route may exist that will be more feasible than those designated, the object being to ascertain the best possible line.

Yours, &c.,

(Signed) THOS. C. DURANT.

## No. 3.

New York, Oct. 2, 1863.

P. A. DEX, Esq.,  
Engineer:

Sir,—You will proceed at once to dispatch a party to run a line, and get profile of the same, commencing at a point in the valley of the Lodge Pole Creek, near the base of the Black

Hills, through Cheyenne Pass, to the Laramie Plains. If they have time, run across the plains by the most practicable route, and through Bridger's Pass into the valley of Green River. If time is short, skip Laramie Plains, and commence where streams rise to Bridger's Pass, and thence to the plains beyond.

The heavy work through these passes, and the grade about which there is any doubt, must first claim your attention ; then the entire line through Wahsatch Mountains on one or two of the most practicable routes. To accomplish the latter, you had better make arrangements, by telegraph, with Gov. Brigham Young, to send a party to run a line from some point, to be designated by yourself, up the valley of the Timpanogos, or any other desirable route, to meet with the first named in Bitter Creek or Green River Valley.

If it is late in the season, run only the line through the mountains. Gov. Young, undoubtedly, has good engineers, and can, probably, run the line in less time and at less cost than we could do. Ask him to do so with as much economy as he can ; but have it done at once, if it can be, this Fall. Let teams go very light from Omaha ; and if provisions can be obtained from Julesburg, get them there. Perhaps you can procure teams there for the time you want them. This you can ascertain by telegraph. Afterwards, you can get your supplies from Denver City *via* Cherokee Trail or stage-road ; or, if necessary and you are near Fort Halleck, let teams go to that post, obtaining an order to do so from Col. Chivington, commander of District Headquarters, Denver City. I would suggest that you hire mule teams, and not purchase unless compelled, by being unable to hire except at very high prices ; also that your party consist of one chief assistant, one compass man, one leveller, one rodman, two flagmen, three chain, one cook, three teamsters, one with horses, two or three pack-mules, a mule team to procure supplies, &c., or less if it can be done to advantage. Of the necessary outfit, however, you are best judge. My idea is to be encumbered as little as possible. Government rations and hard work must be the rule. If you have a party of suitable men in Nebraska, send them, and find more men to fill their places. If you can get teams and supplies at Julesburg, you can send the men on by stage at once.



It will be well for the party to be provided with revolvers, if they have them; and if you want muskets, you can probably get the Governor of Nebraska to furnish them.

Yours, &c.,

T. C. DURANT.

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**No. 4.**

New York, Oct. 3d, 1863.

P. A. DEX, Esq.,  
Engineer:

Sir,—Referring to yesterday's instructions, marked No. 3, I have learned that you may be able to procure supplies of George Ackley, or Ackley & Gillett, near Julesburg. You can communicate with them by telegraph from Omaha. The stage fare, I understand, is \$50 to Julesburg, and no certainty of always getting a stage. You may therefore conclude to send your party by teams from Omaha. If, however, that cannot be done in time to make the surveys this Fall, then send by stage. Snow will not prevent a profile being obtained, and you must send men who are not frightened at its appearance. If you are hard pushed, both passes can be surveyed in a very short time, and we can form an estimate of what will be required.

If you are not at work with two parties in Nebraska, put on your men without delay, or send me word, and I will send men to you.

Yours, &c.,

THOS. C. DURANT.

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**No. 5.**

New York, Oct. 14th, 1863.

JAMES T. HODGE, Esq.:

Sir,—You will please proceed to one of the proposed routes of the Pacific Railroad, west of Omaha, and join the engineering party in charge of B. B. Brayton, Esq., engaged in surveying

said line from Lodge Pole Creek, near the Black Hills, through Cheyenne Pass, and along the foot of the Medicine Bow Mountains.

The object to which you will particularly direct your attention, is the resources of the country in the vicinity of the Black Hills and Medicine Bow Mountains, for the manufacture of iron, making explorations of beds of iron-ore, coal, limestone, sandstone suitable for building furnaces, &c., as near as these may be found to the line of railroad.

Upon this work I expect you will be occupied as long as the season will admit of your doing so to advantage; and on your return you will present me a full report of your explorations, including also notices of any other minerals of interest or importance that you may discover.

Your compensation for this service will be five hundred dollars per month, and your traveling expenses.

Yours truly,

THOS. C. DURANT.

The Board then adjourned.

## PROCEEDINGS OF THE COMPANY SUBSEQUENT TO THE ELECTION OF DIRECTORS.

The Executive Committee of the Company, upon which the management of its affairs devolved when the Board of Directors was not in session, in obedience to the resolutions of the Board embodying a plan for future operations, immediately assumed the acts and instructions of Mr. Durant, already recited; and as soon as the surveys of the country intermediate between the Missouri and the north bend of the Platte River were completed, placed before the President of the United States the results of the same, as well as of the surveys made for the purpose of ascertaining the most favorable point for crossing the Missouri River, for the purpose of obtaining his decision fixing the eastern terminus of the road. This decision, rendered on the 17th of November last, established the eastern initial point of the road within the township, within which is the city of Omaha, the capital of the Territory of Nebraska. As soon as practicable thereafter, on the 2d day of December last, the Company made a formal commencement of the work of construction, by breaking ground on the line of the road near Omaha. The ceremonies on the occasion were appropriate to the magnitude and grandeur of an enterprise which is to work an era in the commercial and political history of the country, and were participated in by the Governor of the Territory of Nebraska, the Mayors of the cities of Omaha and Council Bluff, and by the great mass of the citizens of the surrounding country. Addresses were made by the Hon. A. Saunders, Governor of the Territory; Mr. Kennedy, Mayor of Omaha; Mr. Palmer, Mayor of Council Bluff; and by Messrs. Train, Monell, Larimer, and Poppleton. The occasion was observed at Omaha as a general holiday. Among the letters and sentiments read from distinguished persons whose official duties prevented them from being present, were the following:

EXECUTIVE MANSION, }  
Washington, Dec. 2d, 1863, }

COMMITTEE OF ARRANGEMENTS, &c.,

TO MAJOR-GENERAL DIX :

General,—I have not been permitted until to-day to present to the President your communication of the 23d of November. He directs me to express his deep regret that his illness will prevent him from giving expression to the profound interest he feels in the progress of a work so vast and beneficial as that which you are about to inaugurate.

I have the honor to be

Your obedient servant,

JOHN HAY,  
Assistant Private Secretary.

DEPARTMENT OF STATE, }  
Washington, 25th November, 1863. }

MAJOR-GENERAL JOHN A. DIX,

President of the Union Pacific Railroad Company :

My Dear Sir,—Your kind note inviting me to attend the ceremony of breaking ground for the Union Pacific Railroad in Nebraska, has just been received.

For the first time, as I think, since the foundation of the Government, the foreign relations of the country, exact the attention of this Department so constantly, that its head is often obliged to forego customary good offices and courtesies towards the loyal citizens who are engaged in developing the resources of the country, and establishing its domestic interests. For this reason I can reply to your invitation only very hastily and very briefly. Of course I cannot go to Nebraska, and, therefore, I must decline. With your brave help, and that of your armed compatriots on sea and land, I hope we shall soon put down this wretched and wicked insurrection against the Union. With the help of our capitalists, and our free and loyal laboring men, the Union Pacific Railroad can, and I hope will be extended to

the Pacific Ocean. When this shall have been done, disunion will be rendered forever afterwards impossible. There will be no fulcrum for the lever of treason to rest upon.

Faithfully yours,

WILLIAM H. SEWARD.

TREASURY DEPARTMENT, }  
November 25, 1863. }

My Dear Sir,—Your kind invitation to write something that may be read at the breaking of ground on the Union Pacific Railroad in Nebraska, found me in the midst of engagements so exacting, that it has been impossible to write anything worth the reading.

I could not, however, omit writing altogether. for that would imply an indifference to the work which no American feels.

It is among my most pleasing recollections of service, as a Senator from Ohio, that the first practical measure, looking to the construction of a Pacific Railroad which received the sanction of Congress, was moved by me. That measure was an amendment to the Army Appropriation Bill, placing at the disposal of the Secretary of War one hundred and fifty thousand dollars to be expended in surveys and explorations of routes for the road. It was adopted by the Senate in February, 1853, and subsequently concurred in by the House. Its results are embodied in eleven volumes, known as the Pacific Railroad Reports, printed by order of Congress.

It is another pleasing recollection that I had the honor, in March, 1850, of presenting and commending to the Senate the memorial of Dr. Pulte, an intelligent physician of Cincinnati, praying that measures might be taken for the connection of New York with London, by extending the existing lines of telegraph to the Pacific, by way of the coast and Behrings Straits, through Northern Asia to St. Petersburg, and then forming connections with the lines to the cities of Western Europe.

This great work has since been completed to the Pacific by the indomitable energy of Hiram Sibley, a private citizen of New York, aided by the simple promise of employment and

compensation by the Government. On the other side of the Pacific, the Russian telegraph line from St. Petersburg, constructed by the Imperial Government, approaches, if it has not already reached the Pacific; and American enterprise is earnestly enlisted in the task now certain to be accomplished, of completing the wonderful work which the Cincinnati physician suggested more than thirteen years ago.

Steam runs more slowly than lightning. The progress of the railroad has been necessarily slower than that of the telegraph. When the surveys and explorations for a route had been partially reported, the subject of the railroad was again brought before Congress, and I again had some connection with it—now, however, of a less pleasant though still significant character. Solicitous for the progress of the route, I submitted a resolution in January, 1854, instructing the Committee on Roads and Canals to inquire into and report upon the construction of a railroad from some point on the northern lines of the Western States, to some point on the eastern line of California.

On the motion of Mr. Gwin, the reference to the Committee on Roads and Canals was stricken out, and the whole subject referred to a select committee of nine Senators, from which committee I was excluded, because I then held about the same, relations to the Democratic party on the subject of slavery, as the War Democrats now hold on the question of the rebellion.

Mr. Gwin's committee reported a bill, which, after much discussion and sundry amendments, passed the Senate in 1855 but failing to receive the sanction of the House, did not become a law.

Nothing further of importance was done in relation to the Pacific Railroad for the next seven years. The attention of the country was absorbed by other questions, and it remained for the Thirty-seventh Congress to give a grand proof of the stability of the Republic, and the worth of Democratic Republican Institutions, by taking up this great measure, in the midst of our terrible civil war, and framing it into a law. The Thirty-seventh Congress will be forever memorable in history, as the author of many acts of legislation of transcendent importance, and far-reaching consequences. Among these great acts, the Pacific Railway bill will remain as one of the most

illustrious monuments of the wisdom and courage of its members.

I shall not attempt any discussion of its importance to our industry, our commerce, or our Union. I have elsewhere said something on these themes, but now the road is its own most eloquent advocate. I rejoice in the belief that under your charge, and that of the other eminent citizens associated with you, it will go steadily forward to completion; and vindicate by perfect success the most sanguine predictions and hopes of its advocates and supporters.

Very truly yours,

S. P. CHASE.

General JOHN A. DIX,

President Union Pacific R. R. Company.

DEPARTMENT OF THE INTERIOR,  
Washington, D. C., Dec. 2d, 1863. }

Sir,—The energy which has characterized the Union Pacific Railway Company since its organization, affords great satisfaction to the Government, a cause of congratulation to the people, and a guarantee that the work will be prosecuted to completion long anterior to the time prescribed by Congress. The country has a double assurance of this, in the fact that the stockholders of the Company are gentlemen possessed of the means and the will to consummate their undertaking, and that it would be accomplished if they were prompted solely by the hope of gain; for, certainly, no one can consider the immense commerce of the route without being convinced that it will pay remunerating dividends upon their investments. I gladly believe that it is not the prospect of gain alone that has prompted the stockholders in their undertaking, but that they have been induced to engage in it by considerations of patriotism and philanthropy. We are encouraged to hope and believe that this desolating war will soon be over, and the authority of the Gov-

ernment restored throughout the land. We shall then have liberated from the bearing of arms, in both sections of the country, near a million of men, thousands upon thousands of whom, for various reasons, will seek new homes and new adventures in the vast fields of gold and other precious metals already found, and still being discovered, in such astonishing richness, throughout all the mountain ranges of California, Oregon, and the Western Territories. What, then, can be of greater importance to the Government than the construction of this artificial way, by which all the elements of civilization can be readily and rapidly transmitted to those regions; the power of the Government manifested, and, if need be, its authority preserved?

And to what more grateful purposes can the patriot and philanthropist devote his energy and his means than in opening the road for those noble men, who have dared and periled all in the preservation of their country?

Consider the thousands of happy families who shall, along the line of this road, find garden homes upon the public domain, which otherwise would have remained a barren waste. The pecuniary advantage and comfort to be realized by those who shall work in the mines; and all this in addition to the great object, hitherto only considered, of uniting the Atlantic and Pacific oceans, to afford a new line of commerce between them. And I am sure yourself and associates will feel a pride and joy in your undertaking, far transcending any considerations of profit, and be only too happy that you have been engaged in an enterprise which has for its object such beneficial results, and, with renewed zeal, will vigorously prosecute the work "in summer heat and winter cold" to its completion.

This enterprise—second only in importance to the suppression of the Rebellion, and more necessary in consequence of it, will not pass unnoticed in history, and bright will be the page which shall record the names of those who had the courage and the patriotism to undertake it.

Your note to me of the 23d ultimo, conveys the intelligence that it is designed to "break ground on the Union Pacific



Railroad in Nebraska" to-day. I tender to you my congratulations upon the commencement of this great work.

I am, sir,

Very respectfully,

Your obedient servant,

J. P. USHER,

Secretary of the Interior.

Hon. JOHN A. DIX,

President of the

Union Pacific Railroad Co.,

New York.

New York, Dec. 1, 1863.

To P. A. DEY and

Committee of Arrangements,

Omaha:

The inauguration of the Union Pacific Railroad, the great enterprise of the Western hemisphere, whether considered in reference to its economical importance, or its influence as a bond of union, is to be pushed on to completion with all the rapidity which a command of means will permit; and I congratulate those who are to be present at breaking ground, on the early commencement of the work.

JOHN A. DIX,

President Union Pacific R. R.

New York, Dec. 1, 1863.

To the Committee of Arrangements for Breaking Ground on  
Union Pacific Railroad Co., Omaha, Nebraska:

The honor of inaugurating the greatest enterprise of the age, is this day yours.

The company has by no means been idle since its organization. The engineers in charge of P. A. Dey, Esq., have run five lines from the western border of the State of Iowa, to a

common point in the Platte Valley, and have made a thorough examination of the intervening country, and the vicinity of Omaha, has been selected as the starting point of this great National Road.

To save time a corps of engineers, under B. B. Brayton, Esq., were sent to the Rocky Mountains before the organization of the present company was fully completed, and are now engaged in surveying routes through Cheyenne and Bridger's Pass. Gov. Brigham Young has, with great promptness, sent out a party of engineers, who are now engaged in running a line through the Wahsatch Mountains. From both, full reports are expected within a short time.

A thorough examination of the country in the vicinity of Denver City, and westerly therefrom, is to be made by competent engineers, at the earliest practicable time.

Prof. J. T. Hodge, an able geologist, of great experience, is now making explorations among the extensive coal fields and beds of iron in the vicinity of the Black Hills and Medicine Pond Mountains, and the country between them and Denver, with a view to the erection of furnaces and rolling-mills for the manufacture of rails. The reports thus far are highly favorable.

With the aid of the general Government, and the assistance of our patriotic people, the work is to be pushed forward with energy and vigor; and the day we celebrate its final completion to the Pacific ocean is, I trust, nearer at hand than our most sanguine friends anticipate.

THOS. C. DURANT,  
V. P. U. P. R. R. Co.

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Nov. 28, 1863.  
St. Nicholas Hotel, New York.

Maj.-Gen. JOHN A. DIX,  
Pres't Union Pacific R. R. Co. :

Sir,—Yours of the 27th inst. is just received. Since I first entered public life I have regarded the enterprise of building a railroad from the Missouri River to the Pacific as of the utmost

national importance. While in Congress, whenever opportunity offered, I urged its necessity, and it is with peculiar pleasure that I am permitted to believe that the building of the road, so long delayed, is about to become a practical verity. I have always believed that, in creating the Platte Valley, with its hundreds of miles of unusually favorable grade, Providence had unmistakeably designated the proper line for the road. The Pacific Railroad, with its branches—the Northern connecting with other roads at Sioux City, in aid of the commerce of the extreme north—the central branch, probably, running west from Omaha and Council Bluffs, “cities on either side of the Missouri River, planted in the very portal of most direct entrance to the Platte Valley,” connecting with the roads through central Iowa, and the southern following the course of the Red River, and the Republican, connecting with the roads through Missouri and south, all uniting at the 100th meridian, thence forming the main trunk to the Pacific, will open a new era in the commerce of the world—obviating the delays and difficulties of a long sea voyage, as well as that of the overland route, and connecting the commercial interests of the Pacific people with the Atlantic seaboard, by means both speedy and certain, it will constitute a community of interest, at once insuring the greatest degree of prosperity, and affording the surest safeguard against a tendency to separation, apt to be engendered by isolation and non-intercourse. I regard it as one of the greatest enterprises of the age. Its iron length, stretched through the fertile valley of the Platte, will cause the latter soon to teem with population, extending through the rich territories beyond, to the Pacific, and they will soon become a cordon of free and prosperous States.

When completed, it will be an enduring monument of the enterprise and patriotism of our common country, firmly uniting the two extremes of the nation, and rendering them indissoluble for all time to come.

I am, sir,

Respectfully yours,

RICHD. YATES.

Maj. Gen. JOHN A. DIX,

Prest. U. P. R. R. Co.

MAYOR'S OFFICE,

Dec. 1st, 1863.

Genl. Jno. A. Dix,

President:

Sir,—Oblige me by transmitting to those charged with breaking ground for the Union Pacific Railroad the following sentiment:

“May this, the greatest work ever projected, in any age or country, form a lasting bond of political and commercial union between the Atlantic and Pacific States.”

Very respectfully,

Your obt. servant,

GEORGE OPDYKE,

Mayor.

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 Sacramento, Dec. 2, 1863.

GOVERNOR ALVIN SAUNDERS:

California acknowledges with joy the greeting of her sister Nebraska, and will prove her fraternal regard by her efforts to excel her sister in the rapidity with which, carrying the iron bonds of Union, she seeks a sisterly embrace. Mountain and desert shall soon be overcome.

LELAND STANFORD,

Governor of California.

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 Salt Lake City, Dec. 2, 1863.

COMMITTEE OF ARRANGEMENTS:

Let the heart of the honest be united to aid the great national improvement.

BRIGHAM YOUNG.

---

 Denver, Dec. 2, 1863.

MAYOR KENNEDY:

Denver sends greeting to Omaha. Colorado freely pledges her mountains of gold in aid of the great enterprise.

AMOS STEEK,

Mayor of Denver.

In addition to the surveys and explorations made, the results of which will be found in the Appendix, the Executive Committee have had constantly in view the importance of collecting, on the ground, the material for constructing at least 100 miles of the road, which now, for the want of railway communications, can only be delivered during the annual stage of high-water, in the Spring. The Committee, consequently, have concluded the purchase of 4,000 tons of American rails, a portion of which are already on the way to the field of operations. The balance will speedily follow. The Committee have also contracted for a large number of locomotive engines, cars, and railroad spikes, and are taking active measures to procure the necessary quantity of ties—a matter of great difficulty and labor in a country so destitute of timber as that traversed by the proposed road. A large number of wood-cutters have been employed, and are on the ground for this purpose.

The Committee are sparing no pains to carry out, to their full requirement, the resolutions of the Directors in reference to the progress of the work, and to justify the general wish and expectation of the country in reference to the vigorous and faithful prosecution of this great enterprise.

At the opening of Congress, the Executive Committee, in behalf of the Company, applied to that body for modifications of, and amendments to, its charter, all of which it is believed to be for the interest of the Government to grant, while some of them are absolutely indispensable to the progress of the work of construction. Among the amendments which may be regarded as indispensable, is the right to take and condemn lands for the roadbed, stations, etc., etc.; and a further grant of aid. The advanced price of labor and material of all kinds is so great that \$24,000 per mile would not be of so great a value to the Company as \$16,000 would have been at the time of passing the act of incorporation. The amendments asked are now being urged upon the attention of Congress, and no doubt is entertained of the disposition of that body to encourage, by every reasonable measure, the rapid progress of this great work.

By order of the Executive Committee.

HENRY V. POOR, *Secretary.*

## APPENDIX.

*Copy of Acceptance by the Company of the Act of Incorporation.*

UNION PACIFIC R. R. Co. }  
 Secretary's Office, 54 William street, }  
 New York, June 23d, 1863. }

To the Hon. J. P. USHER,

Secretary of the Interior, &c., &c.,  
 Washington, D. C. :

Sir,—The undersigned, President and Secretary of the Union Pacific Railroad Company, in obedience to a resolution of the Board of Commissioners of the Union Pacific Railroad and Telegraph Company, passed at the meeting of the same held at Chicago, Ill., on the second day of September, 1862, and by virtue of the authority vested in us by said Board, have the honor, in behalf of the same, by signifying, under the seal thereof, the full acceptance by the Union Pacific Railroad Company of the provisions of the act of Congress, passed on the first day of July, 1862, entitled, "An Act to aid in the construction of a Railroad and Telegraph line from the Missouri River to the Pacific Ocean, and to secure the Government the use of the same for Postal, Military, and other purposes," and we respectfully request that this assent of said Company to the provisions of said act may be seasonably filed, as provided in the same, in the Department of the Interior.

W. B. OGDEN,  
 President of the Union Pacific R. R. Co.  
 HENRY V. POOR,  
 Secretary of the Union Pacific R. R. Co.

[SEAL.]

*Certificate of filing the same.*

DEPARTMENT OF THE INTERIOR, }  
June 27th, 1863. }

Sir,—I acknowledge the receipt of your letter of the 25th instant, enclosing the acceptance of the provisions of the act of July 1st, 1862, by the Union Pacific Railroad Company, of which you are the Secretary, and have to inform you that said assent of the Company has been placed on file in this Department.

Very respectfully,

Your obt. servant,

J. P. USHER,  
Secretary.

HENRY V. POOR, Esq.,  
No. 54 William street,  
New York.

By order of the

EXECUTIVE COMMITTEE.

## APPENDIX No. 1.

### PRELIMINARY REPORT OF ENGINEER.

TO THE CHAIRMAN OF COMMITTEE UNION PACIFIC R. R. CO.:

DEAR SIR:—In accordance with the instructions in your letter of September 6, 1862, directing me to examine, with reference to their practicability for a Railroad route, the passes between the one hundredth and the one hundred and twelfth parallels of longitude, and to gather such information as I could, of the productions, mineral and vegetable, of the extended region between the Missouri River and the Great Basin, I left Omaha city and followed the usual line of travel up the north side of the Platte as far as Fort Kearney.

A rolling prairie of some eighteen miles in width, cut up by the Pappillion creek and its branches, separates the valleys of the Missouri and the Platte, but can be crossed without much difficulty.

The Elkhorn river, a considerable stream well timbered with hard wood, flows near the bluffs of the Platte; and, from its crossing to Kearney the valley resembles in soil and general appearance the Terre Coupee prairie, Indiana, being generally level, and along the road well settled and cultivated. For the entire distance, one hundred and fifty miles, you are not out of sight of a cornfield, and the portion along Wood river (which runs in the valley for at least forty miles) is very handsome, being a table about fifteen feet higher than the part of the valley nearer the river.

At points the Platte is about the centre of the valley, but generally runs nearer the south bluffs; its width varies from one-half mile to a mile, and it is full of islands; Grand Island, the largest, being sixty miles long. Cotton-wood grows on most of the islands, although at many points I noticed cedar.

Maple, Rawhide, Shell and Prairie creeks, Loup Fork and Wood rivers, run parallel, and some of them for long distances in the valley; on the heads of all these streams there is considerable hard wood timber, probably enough with what could be obtained from the islands in the river to furnish the ties that would be required along them.

Loup Fork is the only stream that would involve a large cost



in bridging; a waterway of about one thousand feet in length being there required, with piers thoroughly protected by ice breakers. The balance of this distance would be comparatively free from bridges and culverts, as the road could be so located that the drainage would be either into the Platte or some of the streams running parallel in the valley. I observed this in particular along Shell creek, which could be bridged with a forty foot span.

Crossing the eight channels of the Platte river to Kearney, the contrast with the cultivated lands on the Wood river table is very marked. The character of the soil seems to indicate that the valley above this point will never be cultivated to any great extent, except, perhaps, on the lowlands near the river. How far the arable lands on the north side extended west I had no means of determining, although I occasionally saw a cornfield there and on the islands, but none on the south, except at Cottonwood Springs: the travel being almost entirely on the south side.

From Fort Kearney to Julesburgh, at the mouth of Lodge Pole creek, a distance of nearly two hundred miles, the valley is very wide; that part below the mouth of the north Platte for a distance of forty miles, or more, being not less than twenty miles, the river running nearer the south side.

As far as Cottonwood, there is cedar on the islands in the river, and on the bluffs, and at that point there is a large grove, said to be more than a mile in width, and five or six in length; here the timber seems to end, and up to Fremont's Orchard, nearly two hundred miles, there is nothing but a few bushes along the river.

From Kearney to Julesburgh there is little difference in the two sides of the river for a railroad route, the grading required on either would generally be an embankment high enough for drainage.

From Julesburgh west, I partially examined three routes, the *first*, following the valley of Lodge Pole creek, crossing the Black Hills through the Cheyenne Pass into the Laramie Plains; the *second*, following up the Platte to the mouth of the Cache a Poudre, and near that stream to the summit, thence northwesterly until it unites with the first near the right hand fork of the Laramie river; the *third*, following the south Platte to Denver,

thence up Clear creek and crossing the snowy range at the Berthude Pass.

Lodge Pole creek enters the Platte from the northwest, although its general course from the Black Hills, a distance of one hundred and fifty miles, is nearly due east ; it flows through a broad valley, rising more rapidly than that of the Platte, destitute of timber, except near the base of the mountains, and making a very direct route ; the summit of the Pass is a narrow divide between the heads of this stream and a valley running nearly west into the Laramie Plains. I could not ascertain the ascent, but think a grade of sixty feet per mile would cross this summit with a rock cut not to exceed a half mile in length. The topography of the Pass is peculiar, and the summit very much lower than the range of the hills.

A very direct line can be laid from this Pass to the North Platte, crossing several mountain streams, and skirting the base of the Medicine Bow Mountains, which with the Black Hills are covered with pine to their summits. The supply of timber from this region will be sufficient for the wants of a Railroad for a great length of time, and would furnish all that would be required for construction to Salt Lake Valley.

The Laramie Plains are gravelly and somewhat undulating, but offer no serious obstacles to building a road. Like the Upper Platte near Denver they are covered with grass, which, though thin, furnishes abundant pasturage, and cattle and horses live during the winter without any other food. On a branch of the Platte near Medicine Bow, is a range of hills of iron ore, said to be very pure ; the tests made by a gentleman who had devoted much time to mining in England showing a high per centage ; it is also found in great abundance in the Black Hills, being part of the igneous rocks. Coal is also reported as being found in abundance near the mouth of Sage creek, and along the base of the Medicine Bow Mountains.

These plains are very beautiful, crossed as they are by bold mountain streams of clear cold water, dotted with small lakes, and surrounded with mountains of great elevation, covered with timber to near their summits ; their elevation is nearly seven thousand feet, the atmosphere is remarkably clear, and sky generally free from clouds ; they extend to the Platte river.

West of this the character of the country changes immediately; the soil becomes clay, and there is little vegetation, except sagebrush and greasewood, to Green river. A railroad line would ascend for a distance of twenty miles to Bridgers Pass, which from the elevation furnished by Lieutenant Bryan, I think might be reached by a grade of seventy feet per mile, the ascent being regular, as also the descent to the west. It is a valley with clay bottom, varying in width from one thousand to twenty-five hundred feet, with the mountains rising to a great elevation on either side. An earth or clay cut would be necessary here.

There was about three feet of snow in the centre of the Pass last winter, but it drifted very deep on the north side at the base of the mountain. Descending to the west you reach the valley of Mud creek, a branch of the Elkhorn river, and the Bituminous coal fields, which you cross, and continue in to Green river, a distance of one hundred and fifty miles. In the valley of Bitter creek it is particularly abundant, an out-crop showing at almost every point; it is more than probable that coal oil may be found in the Oolite formation here. The coal resembles the Erie Pennsylvania, burns with a flame nearly white, leaving no clinker; I could detect no sulphur in breathing the smoke.

Between Muddy and Bitter creeks is a wide plain with no rise of any importance, and a rail road line can be run down the valley of the latter with easy grades and little sharp curvature. Near the point where it empties into Green River, the bluffs, or sandstone buttes, rise about three hundred feet.

Green river, which was so low that we forded it, is a rapid stream, two hundred and fifty feet wide, with a narrow valley; coal and borax seemed very abundant, and I was told that iron, lead, and many other minerals have been found along it.

From this to Bear river the route should be in a Southwesterly direction, leaving Fort Bridger some twenty miles to the north and approaching the base of the Uinta mountains, and though heavier than most of the route east of it, there are no great difficulties to be encountered.

From Bear river to the north of the Timpanagos will be the most expensive portion of the entire route; you must ascend a branch of the former stream, make a heavy crossing into the Weber, follow it down to Kansas prairie, and then crossing over

to the Timpanagos, descend through Round prairie and the Canons of the river to Salt Lake valley. The Timpanagos runs for ten miles between vertical walls of rock, and there are points where the road must be cut in the sides as well as several crossings of the river, which in flood is a large stream; it breaks through the Wahsutch mountains, and with the exception of the Weber, furnishes the only passable access for a rail road to the valley from the east; from its mouth the route would continue northwesterly around the foot of Lake Utah, and thence west to Camp Floyd, or north, down the river Jordan to Great Salt Lake city; neither route would be difficult to build.

*The second route* that I examined, follows up the Platte, which is of the same character as the valley below, to the mouth of the Cache a Poudre. From the point where the stream breaks through the mountains, there is a rapid ascent for sixty miles to the ridge that separates it from the Laramie Plains; this opening is through sandstone and hornblende rocks, but a favorable line can be laid up it, although the ascent is greater than through the Cheyenne Pass, from the fact that Lodge Pole creek rises more rapidly to the base of the mountains than the Platte, the summit elevation varying little in either.

This sixty miles would require heavier grades and more curvature than the line through the Cheyenne Pass, and cost probably twice as much per mile; the descent into the Laramie Plains is comparatively light, and it would unite with the first route near the right hand fork of the Laramie river, increasing the distance sixty or seventy miles.

*The third route* follows on favorable ground and crosses the Platte at Denver, running thence nearly west to the base of the mountains, thence through the Canon of Clear creek and up the valley to Hoopes creek, which rises in the Berthude Pass.

Mr. Case's survey of this route from Denver, shows a heavy and expensive line up this valley, the road bed being cut in the mountain side at a considerable elevation for a number of miles; it ascends with a grade of one hundred and ten feet per mile, and crosses the snowy range with a tunnel three and one-half miles in length, and descends into Middle Park in a similar manner.

This pass is between three and four thousand feet higher than either of the others, and the rock cutting would be through either granite or hornblende. I did not go west of the Pass, but from Mr. Berthude, the engineer, who made the wagon road survey, and from whom the Pass derives its name, learned that this is the lowest depression in the Range, that the line west, as far as the Timpanagos river, where the line at Strawberry valley unites with the one I have indicated, presents no great difficulties, and could probably be built as cheap as the north line. He represents this region as producing grass in abundance, and thinks that at some points cereals may be successfully cultivated. Coal is found on Green river and its branches, similar to that on the north line.

I did not examine a route up the north Platte and through the south Pass ; but the distance in this event would be increased sixty miles, which would counterbalance the four hundred feet less elevation of summit.

Taking the first route I have indicated, and upon the supposition that the main line starts on the one hundredth parallel of longitude in the Platte valley, a road can be built from Omaha to the Great Salt Lake valley, near the foot of Lake Utah, with a distance not to exceed nine hundred and sixty miles.

There are but four points on the entire route that probably ever will furnish any great amount of local business ; they are the Rocky mountain gold region, of which Denver is now the business centre ; the Medicine Bow and Platte river iron region ; the Green river coal fields, and the Salt Lake valley. This route would meet the requirements of the last three, but not fully those of the first, as they are now developed.

My own conviction, however, is, that the range of the gold-bearing quartz is as extended as the snowy range itself, and that the few discoveries in the vicinity of South Park, and along Clear and Boulder Creeks, and their branches, are but the precursors of developments in the mountain chain that separates the three Parks, that will, in a very few years, yield a greater amount of treasure than is now furnished by California ; and that important points may grow up north as well as south of the present centre. I talked with no miner who did not believe it as extended as I have described it.

A gentleman who accompanied me on the trip, and had devoted much time to prospecting and mining in California, told me, as we passed the different streams from Denver to the crossing of the North Platte, that in the St. Vrain, the Thompsons, the Cache a Poudre, the Laramie, and Medicine Bow, and their branches—streams issuing north and east from the range—he saw indications of gold in the quartz brought down quite as marked as in those on which they are now successfully mining. West of the Platte, all indications disappeared.

This line would be, at the nearest point, one hundred miles from Denver. At Julesburg, or the mouth of Lodge Pole Creek, the distance given from Denver, by the stage company's table of distances, is one hundred and fifty miles.

The serious objection to this route is, that it fails to meet the wants of the Denver gold region. To any one who has watched the mighty trains that are constantly thronging this road, and remembers that this is almost a purely mining population, where every article of consumption is transported from the Missouri river, the conviction cannot be resisted, that the road should be built there, if it can be done at a reasonable additional cost.

Careful surveys and estimates, accompanied by schedules of the tonnage, would determine its practicability.

The route up the Cache a Poudre would, at the nearest point, be probably within fifty miles of Denver.

The route through the Berthude Pass would meet the wants of business, but the practical difficulties are serious. In the sixty miles from Denver to the centre of the tunnel, Mr. Case makes on his grade, a rise of four thousand eight hundred and twenty feet, or eighty feet per mile; a large portion of the rise, however, must be made in the last twenty miles. The tunnel itself is three and one-half miles in length, and from one thousand to fourteen hundred feet below the summit of the Pass, with no probability of finding one lower.

The tunnel would, probably, be through granite; and most of the excavation from Golden City, the base of the mountains, to the boiling spring in the middle Park, a distance of about one hundred miles, would be granite or hornblende.

The elevation of the Berthude Pass above the level of the sea is

11,410 feet; of the summit of Mr. Case's tunnel, 10,050 feet ; of Denver, 5,302 feet, and of Pike's Peak, 14,250 feet.

I presume that it will never be seriously urged that the middle Park, or any other section six or seven thousand feet above the level of the sea, can ever become, to any great extent, a successful agricultural country. The elevation of the Plains north and south of the Uinta Mountains, is doubtless about the same.

I have only incidentally alluded to the tonnage of the Plains, thinking that you could obtain more explicit information from other sources, but believe that even now, taking the California, the Salmon River, the Salt Lake, and the Denver travel and traffic, from the various points of leaving the Missouri river, that it would nearly equal in amount that of either of the roads west from Chicago. At any rate, by the time a road was built to the base of the mountains, it would have a business that would pay well.

The population of Utah, claimed to be about seventy-five thousand, located nearly central on the road ; active and industrious, their energies guided by a sagacious and far-seeing head, whose power is almost absolute, will aid materially in the successful prosecution of this enterprise.

They have already turned the mountain streams from their channels, and, by irrigation, changed a desert into farms, gardens, and orchards. They are producing, and will be able to export, besides fruits and cereals, wool, cotton, silk, paper, leather, iron, lead, copper, and salt, and are now introducing machinery for their manufacture.

The conviction seems general that they are destined to become a self-dependent people, and need a railroad mainly to carry off their surplus productions and bring back their emigration.

I can only add, to complete this report, what I have endeavored to show throughout, that I am satisfied the cost of the road will be less, and its business far greater than its most sanguine friends anticipate.

All of which is respectfully submitted.

PETER A. DEY.

## APPENDIX No. 1 (a).

TO THE PRESIDENT AND BOARD OF DIRECTORS OF THE UNION  
PACIFIC RAILROAD COMPANY :

GENTLEMEN :

Since coming to this place early in October, I have made the following surveys from the Missouri River, between the mouths of the Platte and Boyer Rivers.

The *North Line*, as indicated on the Map that accompanies this, passes over nearly the same ground as the survey made by the "Cedar Rapids and Missouri River Railroad Company," except on the west, where, instead of following the valley of Bell Creek to the Elkhorn, their line runs north, and crosses another summit, deviating from the direction to the north bend of the Platte, and evidently increasing distance and grades, without any equivalent.

The *Second Line* starts from the north line of the congressional township in which the city of Omaha is located, and, running through Florence, passes up Mill Creek, over the broken ground, into the East and Main Pappillion Creeks; and thence northerly, making a summit between one of the branches of this stream and Walnut Creek, which it follows to the Elkhorn. The work on this line is so heavy that it does not favorably compare with either of the other surveys.

The *Third Line* starts from a point on the Missouri Bottom, near Omaha, and running at first northerly, it curves and crosses the first ridge back of the State House; thence running down the valley of Saddle Creek, to near its mouth, crosses the dividing ridge between the Pappillion Creeks, and unites with the fourth near Paddock's Grove.

The *Fourth Line* starts from the south end of the city of Omaha, and, running up the valley of a small stream, reaches the valley of the Pappillion Creeks, near their junction; then follows the main stream to Paddock's Grove; and, running



thence, westerly, over the high prairie, cuts the ridge at the Elkhorn at a very low depression, and reaches the valley of the Platte, with a distance of twenty-one miles.

The *Fifth* Line starts from Bellevue, runs up the Main and West Pappillion valleys, and unites with the fourth about five miles from where it crosses the ridge into the Platte valley.

The *Sixth* Line follows the valley of the Platte from its mouth to a common point of junction of all the lines near Fremont.

The Platte Valley Line increases the distance eighteen miles; and, though favorable, with the exception of increased bridging, I have thought best to leave it, the Florence Line, and the North Line from Omaha out of the comparison.

The line from Bellevue, though between five and six miles longer than either of the northern ones, has lighter grades, and presents less difficulties of construction than either of the others, making in the main an uniform ascent from the Missouri to the summit on the Elkhorn. For cheapness of construction and operating, this is, without any question, the most desirable line.

The South Line from Omaha has some heavy grades, but these are so near the terminus that they would not affect it as seriously as if it were otherwise, while in cost of construction per mile, it is second only to the Bellevue Line—having less bridging than the others, and running in the vicinity of stone that can be used for bridge abutments and culverts.

The North Line, although starting eight miles west of the Omaha Line, and nearly east of the point of junction, diverges so much from direction that it is nearly as long, while the heavy work consists of cuts and embankments (as will be seen by reference to the profile), so long that it cannot be pushed rapidly. On this I have laid, as a maximum grade, sixty-four feet per mile; a lower grade would proportionately increase this difficulty.

Assuming the South Line from Omaha as the location, the truss bridging required for the first hundred miles would be,

Little Pappillion, one span of 100 feet.

Main Pappillion, one “ “ 150 “

Elkhorn River, one “ “ 150 “

Shell Creek, one “ “ 80 “

Loup Fork River, seven spans of 150 feet.

Or a total length of truss bridging of 1,530 feet, probably less than can be found anywhere on roads crossing the drainage of any country. In some of these bridges there will be trestle at the ends; for this I propose using timber that can be obtained here.

A portion of the ties necessary for the building of the road can be obtained along the line, but no great number that are reliable. There is a belt of timber on the Blackbird Hills, on the Omaha Indian Reservation, on the Missouri, which would be accessible if the right to cut timber on Indian Reserves could be obtained. Further up the Missouri, at Frankfort and St. James, there is a small amount of cedar, from which a few thousand ties may be procured; and further up, in Dahota, west of the Big Sioux, there is a large body of cottonwood timber, in which there is a considerable amount of oak, coffee-nut, black walnut, and other timber suitable for ties, but insufficient in amount for the purposes required.

The cottonwood timber (which abounds along the river from this point north, and is in considerable quantity along the Platte for three hundred miles west,) holds a spike nearly as well as oak, would be valuable and easily obtained, and answer the purpose, could some process be adopted to prevent its rapid decay.

These ties could be delivered on the bank of the river, at this point, for from thirty to forty cents; other ties, without much probability of procuring a supply, would cost from seventy-five to eighty cents. I have not been in a position to learn what process would answer best or be the cheapest for preserving this timber.

This is a matter that should receive immediate attention, as the winter months are more favorable for getting out ties than any other.

The following communication was handed me several days since :

BELLEVUE, NEBRASKA, December 21st, 1863.

P. A. DEY, Esq. :

DEAR SIR :

I am authorized to pledge to the Union Pacific Railroad Company, through you, in your report to the Company, one mile of

Rock landing; 2,500 city lots in the city of Bellevue; 2,500 acres of land adjoining said city, provided the eastern terminus of the Pacific Railroad is located at this place.

Very respectfully your obedient servant,

DAVID LEACH,

*Mayor of Bellevue.*

The successors of the Florence Land Company propose, in person, to present the claims of their point, and urge as does Bellevue, the fact, that there is rock in the bluffs and bottom of the river, at those points.

The citizens of Omaha offer, on the condition that the station buildings are erected within one and one quarter miles of Far-num street, in this city, to furnish the Company the ground between the table on which the town is located and the river, a mile and one half in length; and containing about five hundred acres, a portion of which is, however, below extreme high water; to deed to the Company six thousand acres of land in Douglas County, and five hundred acres within two miles of the city.

These propositions are for your consideration.

Mr. Brayton, the engineer who made the surveys through the Passes, on the forty-first parallel of latitude, has just returned, and finds a cheap line through the Cheyenne Pass, with grades of one hundred feet to the mile; through Bridger Pass, with grades for only a short distance, of seventy-five feet to the mile, the remainder being much lighter. I have directed him to return copies of his profiles to the New York office. On both these lines he is satisfied that, by more extended surveys, the grades may be reduced.

The energy and perseverance with which he has conducted these examinations, in a region where, for a portion of the time, he has been out of the reach of aid, and against the advice of men most familiar with the mountains, in a season, thus far, of unusual severity, entitles him to your confidence.

Professor Hodge, the geologist who accompanied him, found his efforts mainly baffled by the amount of snow on the ground, still he has developed the fact, that coal fields of almost bound-

less extent, and of a quality well adapted to the use of locomotives, lie on both sides of the Black Hills; and that iron, to a certain extent, is found in the vicinity. He will report to you fully. I would urge the importance of continuing his examinations during the coming season, and extending them to Salt Lake.

The Passes surveyed by Mr. Brayton cover the only points in which I anticipate much difficulty, until in the vicinity of Salt Lake. I have received no report from the engineers surveying up the valley of the Timpanagos River, sent out by Governor Brigham Young.

I have prepared a General Railroad Law for the Territory of Nebraska, which, should it pass, will, I think, furnish all the legislation required for the construction and operation of the Road.

The estimates and profiles that accompany this, with the maps, will furnish, I trust, all the information that you at present require. It is important that the first twenty miles be put under contract at once, as most of this grading may be done in the winter.

All of which is respectfully submitted.

PETER A. DEY,  
*Engineer in Charge of Surveys.*

OMAHA, Dec. 25, 1863.

T. C. DURANT, Esq.,

*Vice-President Union Pacific Railroad:*

SIR :

In your letter of the 14th instant, I find some inquiries with regard to *ties* which require an immediate answer.

In the first place, there are not men enough in this country that can be hired at any price to get out the ties you need as fast as they will be required; and, secondly, there is hardly enough oak and other suitable timber between Omaha and Fort Randall to supply what you need.

There is, however, along the line of road from this place to Fort Kearney, *some* oak, walnut, coffee-nut, red elm and other woods suitable for ties; and, on the river, within one hundred miles, *cottonwood* can be had in quantity amply sufficient to supply the Road for a long distance. This wood will *hold a spike* nearly as well as oak, but it remains yet to be determined whether it can, by any comparatively cheap process, be rendered durable.

Considerable cedar is said to be growing on the Running Water, a tributary of the Missouri, commencing about one hundred and fifty miles above Sioux City, and extending up from two to three hundred miles; but, as timber cannot be floated down this stream, I do not think it feasible or practicable to get ties from that source.

Nearly all the cedar posts in use here have been brought from Cottonwood Springs, by freight trains returning from Denver.

Cottonwood ties can be delivered here, piled on the river bank, for from 30 to 40 cents, and hardwood for from 75 to 80 cents, at the present rates for labor; but the *quantity* you require can not be got out by men living here.

In the last conversation I had with you, before leaving New York, this subject was discussed; and I understood that your

intentions, at that time, were to have some other person attend to it. For this reason, I have not heretofore communicated with you respecting it.

Yours respectfully,

PETER A. DEY.

OMAHA, January 27th, 1864.

T. C. DURANT, Esq.,

*Vice-President Union Pacific Railroad:*

SIR :

I send you by express, to-day, two profiles. The first is from the north line of Omaha township, through Florence, and across the dividing ridge, near the head of Little Pappillion, to its intersection with the Northern Route, in Section 34, Town 18 N., Range 11 East. The other extends from Paddock's Grove, or Section 27, Town 15, Range 12 East, up the Pappillion Creek, to the intersection line in Section 8, Town 17, Range 11 East.

The ground back of Florence is so high and broken, that I send you the profile merely to show you the comparative elevation. This Line starts from the same base as the Omaha Line, has been run with care, and, I think, cannot be materially improved. It is, of course, out of the comparison.

The line up the Pappillion from Paddock's Grove is very favorable in grade and profile, the only objection being the amount of bridging required in crossing the stream eight times. Three of these crossings could be avoided by throwing the line into the hills, at a sacrifice of profile. The most expensive portion of the Omaha line is between Paddock's Grove and Omaha.

The comparative distances are as follows :

Located Line, from Omaha to Fremont, <i>direct</i> ,	37.31 miles.
“ “ by Pappillion Valley and North	
Route.....	44.24 “
Located Line, Florence and Northern Line.....	40.52 “

I have just received telegraph from Brigham Young, advising me that he has forwarded notes of survey up Timpanagos Cañon. What shall I do with them?

Respectfully yours,

PETER A. DEY.

OMAHA, January 28th, 1864.

T. C. DURANT, Esq.,

*Vice-President Union Pacific Railroad:*

SIR :

I sent you yesterday, by express, the profiles from the north line of this township, by way of Florence, to the intersection of the Northern Line, and also profile of Line up the Pappillion, from Paddock's Grove to the intersection. Shall send, to-day, the Line along the river up to De Soto. The Florence and the De Soto Lines are impracticable; the former, from the elevation of the country at the back of it, and the depth of the valleys which it is necessary to cross; the latter, from the fact, that for a distance of two or three miles the river washes an almost perpendicular bluff, nearly 100 feet high, where a road-bed could only be sustained by a heavy retaining wall, the material for constructing which could not be readily obtained.

The Pappillion Valley route—as the profile shows—is quite feasible; and, with the exception of the increased amount of bridging, will compare favorably with the other line.

The unusual severity of the weather has materially retarded the progress of the surveys, for much as I regretted the delay, it was impossible for me to keep men in the field.

Respectfully yours,

PETER A. DEY.

## **Appendix No. 1, B.**

### REPORT OF B. B. BRAYTON, CIVIL ENGINEER.

TO THE PRESIDENT AND DIRECTORS

OF THE UNION PACIFIC RAILROAD COMPANY :

Sir,—I send you herewith the profiles of Cheyenne and Bridger's Passes.

The survey of the Cheyenne Pass was commenced at the summit, at the lowest point in the vicinity of the place selected for starting the survey. Assumed elevation, seventy-four hundred feet. It will be seen by the profile that the ridge, which is very narrow, being only thirty-eight hundred feet through it at grade line, requires a tunnel of twenty-five hundred feet, with open cuts at each end seven hundred and six hundred feet. The levels were run west to the head of a ravine at Station 24, from which point, west, the line can follow along the west face of the mountain, which is very regular, and will enable us to get a fair line by following north, along the mountains, until the grade descends to the *Laramie Plains*. It will be observed that from Station O, east, the mountains fall off rapidly to Station 16. At this station I undertook to run nearly to a grade descending two feet, for 100 or 105 feet, six inches to the mile. A much lighter grade would have kept my line too high. A much heavier, would descend faster than the stream. The heavy cut from Station 47 to 60 can be avoided in part, by throwing line down toward the creek. From Station 7 to 100, ground near grade may be had to the north line by crossing the ravine at Station 96 considerably higher.

From Station 96, east, the line encounters no serious obstacles to Station 650. In this vicinity the south branch of the Lodge Pole Creek will have to be crossed. It here passes through a deep gorge, the hills or mountains rising very high on either



side. The earth, or debris of the mountains appears to have slipped down at some time and dammed up the stream, and the water has forced a narrow passage through. The line east of Station 680 follows alongside of mountain to opposite Camp Wallach, terminating on high table land about seventy-five feet above surface of ground at foot of mountain, one hundred and two feet above surface of water at the bank of the creek, and one hundred and eight feet above surface of water in the creek. The stream falls from the mouth of a gorge to Camp Wallach, at the rate of eighty feet per mile. I think there will be no difficulty in starting grade down the valley, and finding suitable ground to attain such an elevation on side of mountain as will enable us to reach the summit with a grade of 105 feet per mile. It may, however, be at the sacrifice of the line. I have no doubt a good line can be had at grades as shown in the profile. The cuts will, in all cases, except from Stations 670 to 676, be a rock. From a point of rocks some two hundred feet above the general plane of the Pass, I, with a field-glass, observed a route to the south of the one I examined, which would enable us to reach the summit by a grade apparently easier. The line would leave the plains on the east side of the mountain, from one to three miles south of Camp Wallach, and reach the summit east of the Willow Spring Station, fifteen miles southeast of the station on Big Laramie. From this summit, west, the grade will probably not exceed fifty feet per mile. The line would be over good ground, and the distance would not be increased. You will, doubtless, inquire why I did not explore this route. I would have done so but for the lateness of the season, and being short of provisions, with no way of procuring any, unless I sent to Denver or Fort Halleck: either place requiring from ten to twenty days to make the trip. There was also great danger of being snowed in; (as it was, it took about two hours to shovel through the drifts in getting out of the Cheyenne Pass). I had still the Bridger's Pass to examine, which was one hundred and forty miles west, and seven days' travel in summer, and at least ten at the time we made it. The day after we left the Cheyenne Pass a storm set in which, for fierceness, intensity, and duration, I never saw equaled. It lasted ten days, and interrupted all our operations for that time. One of my men

froze his feet in attempting to reach Fort Halleck. Numbers of persons were badly frost-bitten, and many cattle perished on the plains. Prof. Hodge urged me strongly to abandon the survey at Bridger. I said to him, that I was sent to make it, and I intended doing so before I returned. While at Fort Halleck I procured a six-mule team, wagon, and driver, and thirty days' rations for my party. As soon as the storm ceased, I started for the Pass, making the distance, seventy-five miles, in two and a half days. The roads, with the exceptions of some drifts of snow in Rattlesnake Pass, four miles west of Fort Halleck, were in good condition. Friday, December 3d, I pitched my tent near the serving station of the Overland Stage Company. During the day I sent a party of men to the mountain for wood. A limited supply of poplar was found. On Saturday, I commenced my survey, but on account of the sage bush and snow in this pass, I was compelled to run my levels in the road. This, however, enabled me to determine the general character of the pass. Whenever the road came near the valley of the stream, I took notes of its elevation, and you will find in profile a dotted line showing the general slope of the valley. The lines down the valley will be good, with easy curves. The material appears to be the debris of the sandrock—all the rock in this pass is soft sandstone, similar in character to the sandrock at Pern and La Salle, on the Chicago and Rock Island Railroad. I ran no further west than is shown on the profile. I had determined to work on Sunday, the 6th, if the weather permitted, (deeming it a matter of necessity), but a snow storm set in on Saturday night, and lasted all day Sunday. On Monday, it blew a gale, but after getting up a load of wood, I started, determined to do all I could, as it was impossible to tell how long we should be compelled to stay if we waited for fair weather; made two and a half miles, and returned to camp. Tuesday, broke up camp, and sent both teams east to Pine Grove Station, for fear of being blockaded in the pass. The roads were badly drifted on the east side of the ridges. I continued my survey, and at 2 P. M., had reached the point on the east side of the summit where profile ends. The descent of the valley from this point, west, is so easy, and the valley so comparatively smooth, that further surveys were not required.

The route from the foot of the Black Hills to Bridger's Pass will be generally over very favorable ground, with easy grades, good lines, and light work. I do not believe the report in regard to the deep snows said to fall in these mountains. The country is entirely too dry to have much. What does fall must come, either from the east or from the west. If from the east, all will be precipitated before reaching the mountains. If from the west, the California coast range will cause the clouds to part with their moisture there.

What little snow does fall is blown by the *never-ceasing* wind, blowing almost always from the west, into drifts on the east side of the ridges, and into ravines. The face of the country, except where there is sage bush to catch and hold it, is generally quite bare in two or three days after a snow storm. It only remains where it is sheltered from the winds by timber, mountain ridges, or sage bush. In two days after the severe storm at Fort Halleck, it had all disappeared. I have no doubt there will be as little interruption from snow in the Cheyenne and Bridger's Passes, as in New York or Iowa.

Very respectfully,

Your obedient servant,

B. B. BRAYTON.

## ESTIMATES OF GRADUATION AND MASONRY

ON A

*Part of the Route through Cheyenne and  
Bridger's Passes,*

Being that part on which the surveys have been completed.

## IN CHEYENNE PASS.

No. of Section.	Length in Feet.	Quality or Kind of Work.	Quantity Cub. Yds.	Price.	Amount.	Total Amount.
1	5,500	Rock excavation.....	500	\$3 00	\$1,500	
		Embankment .....	80,500	1 00	80,500	\$82,000
2	5,500	Rock excavation.....	1,000	3 00	3,000	
		Embankment .....	338,000	1 00	338,000	
		Hydraulic masonry.....	2,400	18 00	43,200	384,200
3	6,000	Rock excavation.....	4,500	3 00	13,500	
		Embankment.....	163,000	1 00	163,000	176,500
4	6,000	Rock excavation.....	133,500	4 00	534,000	534,000
5	6,000	Rock excavation.....	174,000	4 00	696,000	
		Culvert masonry.....	110	12 00	1,320	697,320
6	6,000	Rock excavation.....	103,000	4 00	412,000	412,000
7	6,000	Rock excavation.....	16,100	3 50	56,350	
		Embankment .....	44,500	1 25	55,625	
		Culvert masonry .....	150	12 00	1,800	113,775
8	6,000	Rock excavation.....	19,300	3 50	67,550	
		Embankment.....	42,200	1 25	52,750	
		Culvert masonry.....	360	12 00	4,320	124,620
9	6,000	Rock excavation.....	38,100	4 00	152,400	
		Embankment.....	2,200	1 25	2,750	
		Culvert masonry.....	220	12 00	2,640	157,790
10	6,000	Rock excavation.....	13,100	3 50	45,850	
		Embankment.....	15,100	1 25	18,875	
		Culvert masonry.....	330	12 00	3,960	68,685
11	6,000	Rock excavation.....	17,900	3 50	62,650	
		Embankment.....	41,900	1 25	52,375	
		Culvert masonry.....	440	12 00	5,280	120,305
12	6,000	Rock excavation.....	44,400	4 00	177,600	
		Embankment.....	30,800	1 50	46,200	
		Culvert masonry .....	700	12 00	8,400	232,200
13	5,400	Rock excavation.....	43,800	4 00	175,200	
		Do. do. in tunnel }	24,100	12 00	289,200	
		(single track)..... }				
		Masonry.....	70	12 00	840	465,240

## SUMMARY OF ESTIMATES.—CHIEYENNE PASS.

No. of Section.	Length in Feet.	Length in Miles.	Estimated Cost.	Average Cost per Mile.
1	5,500	1.042	\$82,000	\$78,694
2	5,500	1.042	384,200	368,714
3	6,000	1.136	176,500	155,369
4	6,000	1.136	534,000	470,071
5	6,000	1.136	697,320	613,838
6	6,000	1.136	412,000	362,676
7	6,000	1.136	113,775	100,154
8	6,000	1.136	124,620	109,701
9	6,000	1.136	157,790	138,900
10	6,000	1.136	68,685	60,462
11	6,000	1.137	120,305	105,809
12	6,000	1.137	232,200	204,222
13	5,400	1.023	465,240	454,780
	76,400	14.469	3,568,635	246,640

## IN BRIDGER'S PASS.

No. of Section.	Length in Feet.	Quality or Kind of Work.	Quantity. Cub. Yds.	Price.	Amount.	Total Amount.
1	6,000	Earth excavation.....	67,600	70	\$47,320	
		Rock do. ....	23,800	\$3 00	101,400	
		Culvert masonry.....	60	15 00	900	\$149,620
2	7,000	Earth excavation.....	3,400	70	2,380	
		Rock do. ....	1,700	3 00	5,100	
		Embankment.....	14,000	70	9,800	17,280
3	8,000	Earth excavation....	38,300	70	26,810	
		Rock do. ....	19,200	3 00	57,600	
		Masonry.....	100	15 00	1,500	85,910
4	7,000	Earth excavation.....	34,500	70	24,150	
		Rock do. ....	17,200	3 00	51,600	
		Masonry.....	150	15 00	2,250	78,000
5	7,000	Earth excavation.....	100,300	70	70,210	
		Rock do. ....	50,200	3 00	150,600	
		Masonry.....	300	15 00	4,500	225,310
6	5,000	Earth excavation.....	101,700	70	71,190	
		Rock do. ....	47,400	3 00	142,200	
		Masonry.....	500	15 00	7,500	220,890
7	5,000	Earth excavation.....	108,900	70	76,230	
		Rock do. ....	54,400	3 00	163,200	239,430
8	10,500	Earth excavation.....	167,100	70	116,970	
		Do do. in tunnel (single track).....	21,400	3 00	64,200	
		Masonry.....	7,800	18 00	140,400	
		Back filling over tunnel-arch..	3,000	1 25	3,750	325,320
9	7,500	Earth excavation.....	48,200	70	33,740	
		Rock do. ....	24,100	3 00	72,300	
		Masonry in 30 ft. arch culvert.	1,250	15 00	18,750	124,790

## VII

## SUMMARY OF ESTIMATES.—BRIDGER'S PASS.

No. of Section.	Length in Feet.	Length in Miles.	Estimated Cost.	Cost per Mile.
1	6,000	1.136	\$149,620	\$131,708
2	7,000	1.326	17,280	13,032
3	8,000	1.515	85,910	56,706
4	7,000	1.326	78,000	58,824
5	7,000	1.326	225,310	169,917
6	5,000	.947	220,890	233,252
7	5,000	.947	239,430	252,830
8	10,500	1.989	325,320	163,560
9	7,500	1.420	124,790	87,880
	63,000	11.932	1,466,550	122,909

**Appendix No. 1, C.**

Great Salt Lake City, }  
 Jan'y 26, 1864. }

PETER A. DEY, Esq.,  
 Omaha, N. T.:

Sir,—Immediately, upon receipt of the first telegraphic messages from yourself and Mr. Durant, I directed my son Joseph A. Young, to proceed as speedily as possible in organizing a party to carry out your wishes in regard to Timpinagos Canon, &c. The party was organized and in the field at the earliest practicable date. Four brief telegrams from Omaha, Oct. 15, was my only guide in instructing them, until the arrival of your letter, dated Oct. 15, which came to hand only a short time before rough weather drove the party from the line. From that letter I could infer that perhaps a more minute survey was desired; but, even had the letter arrived at the first intimation I had upon the subject, I am not aware that they could have done more or better, owing to the lateness of the season, unless, indeed, they had restricted their operations to a very short section of the route. For particulars as to their labors, I respectfully refer you to Mr. Young's report to me, and his tables of grades and distances herewith enclosed. In connection, permit me to suggest whether it will not be well, previous to surveying and estimating for either the Timpanogos or Weber Lower Canon line in detail, to first make a comparatively speedy and inexpensive survey of both those lines, to approximately and cheaply determine the difference of distance, level, &c., between Weber Lower Canon, and Bear River, and Timpanagos Canon and Bear River, as our present information is not sufficient to enable us to determine which is really the best of the routes, all things in connection therewith considered. Regretting that circumstances prevented an earlier forwarding of the enclosed report, and hoping it may prove of some benefit, until the weather permits of further operations,

I remain, very respectfully,

BRIGHAM YOUNG.

Great Salt Lake City, }  
 Jan. 26, 1864. }

T. C. DURANT, Esq.,

New York City, N. Y. :

Sir,—I have, this day, mailed to Mr. Dey, at Omaha, the report of the survey of Timpanagos Canon, and that line as far as Weber River, as the weather would permit. The survey was begun as soon as practicable, and was diligently prosecuted until rough weather drove the party from the field. I regret that circumstances have prevented forwarding the report at an earlier date, but trust it may be in time and of a nature to prove of some benefit in the great work. If consistent, I shall be pleased to have you inform me, at your earliest convenience, as to how many and what places you propose to begin work upon next season, and a brief synopsis of the proposed mode of conducting the work. You are, doubtless, advised of the extensive coal beds on Bitter Creek and Weber River. On Bitter Creek, indications of iron ore have been noticed, and of late very flattering experiments have been made upon the iron ore found on Weber. Early in the Spring I am in hopes to be able to learn definitely the quality of the Weber iron ore, and the probable extent of the ore beds. Holding myself in readiness to aid so far as I may be able, in completing a work of such magnitude and usefulness as is the Pacific Railroad,

I remain, very respectfully,

BRIGHAM YOUNG.

## REPORT OF JOS. A. YOUNG, CIVIL ENGINEER.

President BRIGHAM YOUNG :

Sir,—In accordance with instructions from you “to make a preliminary survey of the Timpanagos route as far up as Kamas Prairie, to ascertain whether the grades would be practicable for the Pacific Railroad,” I proceeded, on the 23d of October, to organize a party as follows;—Mr. J. W. Fox, assistant; an instrument carrier, two targetmen, two chainmen, an axeman, two teamsters, a cook, one four, and one two mule team for



transportation, and three saddle animals for reconnoitering, with rations and forage for twenty-five days. The instruments used were a railroad level, a common field compass, and Gunter's chain.

On the morning of the 26th, I started the party for the field of operations, distant forty-seven miles, and on the evening of the 28th, Mr. Fox and myself joined them at Provo city. On the morning of the 29th we commenced field operations, taking as our initial point, the Northwest corner of President square Provo city, 60 feet above level of water in Utah Lake. From this point we proceeded with a level and chain line, direct to the mouth of Timpanagos Canon; thence up the Timpanagos river to Kamas Prairie, where we arrived on the 6th of November. From the initial point to this place we found there would be no serious obstructions to encounter, if we except some very short curves near the mouth of the Canon, several broken ledges of mountain lime stone, which in a few instances, are precipitous to the river, and a deep cut through the Kamas Bench to get to the Timpanagos bottom, all of which are shown by the field notes.

Upon our arrival at Kamas, while awaiting further instructions, we learned from Mr. Rhoads and other hunters well acquainted with the country near the head waters of the Weber and Timpanagos, that the latter river heads within fifteen miles East of Kamas Prairie; runs in a southeasterly direction along the West side of the main range of Uinta Mountains, and then, doubling back a distance of some eighty miles, takes a westerly course by the South side of Kamas Prairie; and that the divide between the Timpanagos and head waters of Bear River is very high—there being no practicable pass from one to the other after leaving Kamas; we also learned that there was a low pass to Bear River some twenty-five miles from Kamas up the Weber in a northeasterly direction, which would bring it on the most direct route and that represented to be practicable for a railroad.

Your letter and also a copy of a letter of instructions from Mr. Dey of Omaha, permitting us to use our own discretion in regard to the route from Kamas Prairie, having been duly received through the messengers to whom they were intrusted, it

was considered expedient, from the evidence before us, to continue our survey by way of the Weber route. Accordingly, on the 9th of November, we resumed field operations, crossing Kamas to the Weber River, and thence up the Weber some four miles, where we encountered a very severe snow storm, which rendered it impossible to continue field operations this fall.

Among those best acquainted with the mountains, opinions are about equally balanced as to the practicability of two routes from Great Salt Lake City to the mouth of Bitter Creek, on Green River.

*Route 1.* From Great Salt Lake City to the mouth of Timpanagos canon, up the Timpanagos to and across Kamas Prairie, and up the Weber to a point where the divide between Weber and Bear Rivers may be either tunnelled or crossed by the aid of stationary engines; thence by easy grade to Bear River; thence through a depression in the dividing ridge between the waters of the Colorado and the Great Basin, keeping a line about twelve miles South of Fort Bridger across high level country to Black's Fork and Green River.

*Route 2.*—From Great Salt Lake City, via Farmington and Kaysville to the mouth of Weber canon, up the Weber to the mouth of Chalk Creek, up Chalk Creek, crossing divides between Chalk and Yellow Creeks and Yellow Creek and Bear River, to Bear River; thence up Sulphur Creek to a depression in the Rim of the Great Basin, across a very low divide to the head of and down the Muddy to Black's Fork, leaving Fort Bridger twelve miles to the South, and down Black's Fork to Green River.

The two routes are accessible to each other; on the Weber within twenty-two miles; on Bear River, probably sixteen miles; and on the Rim of the Basin within, from three to eight miles. The grading, bridging, excavation, embankment, and curvature in these routes, would be about equal.

On route No. 1, we cross the range of mountains between Weber and Bear Rivers on a single divide; on No. 2, in two much lower divides. The first is colder and more snowy than

the second, owing to its proximity to the Uinta range of mountains. On No. 1, the line would be near large bodies of timber on the head waters of Weber and Bear Rivers, which would be required in construction, on either route. On No. 2, on Chalk Creek, are extensive deposits of a light, bituminous coal, suitable for railroad purposes.

According to the above facts, collected from those best acquainted with the country, it would seem that the advantages and obstructions are so nearly balanced that the selection of routes will entirely depend on gradients and distance. We would therefore recommend, that, as early as practicable in the spring, a line of levels be run on the respective routes before making any elaborate estimates.

Owing to the lateness of the season, the smallness of our party, and liability to be driven back by storms, and presuming that, in accordance with the above data, distance and gradients would be the principal considerations in determining the route for the Great Pacific Railroad, we made alignment, gradients and distance the principal objects of our reconnoissance, designating, however, in their proper place in the field notes, all such points and ledges of rock, creeks, dry washes, long high slopes and depressions as were likely in the least to prove obstacles to construction.

It will be proper, in this connection, to add, that the courses indicated are corrected magnetic readings and only general; also, that the gradients have more particular reference to the fall of the streams.

We started on our return on the morning of November 11th, and arrived in this city by way of Silver Creek and Parley's Park on the evening of the 12th.

Inclosed, please find a Table showing grades and distance between salient points; also, a Table showing grade of level-line with corrections, showing fall of Timpanagos and Weber, and number of stations per mile; field notes of expedition, and the accounts of the party, including time and wages of men, rations, forage, teams, saddle-animals, in short, the entire expense of the expedition, except leaving blank the pay of Mr. Fox and myself.

All of which, are respectfully submitted.

Very respectfully yours,

JOS. A. YOUNG.

TABLE

*Showing the Rise or Fall in each mile of the Line from Provo City to a point on Weber river, together with the corresponding fall of water in Timpanagos and Weber rivers.*

Mile.	Rise in Feet.	Fall in Feet.	Fall of Water.	Remarks.
1 to 4	180.000	.....	180.000	On Provo Bottom.
5	57.271	.....	57.271	Below mouth of Kamyon.
6	57.271	.....	51.271	Entered Provo Cañon.
7	65.271	.....	65.271	
8	64.917	.....	70.917	
9	75.875	.....	75.875	
10	104.792	.....	98.792	
11	34.396	.....	38.396	
12	10.687	.....	12.687	
13	17.813	.....	17.813	
14	18.458	.....	18.458	
15	20.917	.....	12.917	
16	6.875	.....	14.875	
17	21.500	.....	17.500	
18	10.917	.....	14.917	
19	20.833	.....	17.833	Entered Wall's Ranch.
20	23.750	.....	25.250	
21	23.187	.....	20.687	Entered Provo Valley.
22	44.083	.....	28.083	
23	22.896	.....	32.896	
24	17.021	.....	27.021	
25	39.854	.....	39.854	
26	45.062	.....	45.062	
27	62.375	.....	62.375	
28	62.229	.....	62.229	
29	62.021	.....	62.021	
30	63.708	.....	63.708	
31	57.354	.....	54.354	Provo Cañon.
32	63.125	.....	63.125	
33	49.667	.....	46.667	
34	61.708	.....	65.708	
35	71.896	.....	57.896	
36	60.354	.....	76.354	
37	64.292	.....	62.292	
38	83.917	.....	65.917	
39	58.604	.....	76.604	
40	154.563	.....	156.563	Leave Timpanagos.
41	.....	44.604	.....	Kamas Prairie.
42	.....	7.750	.....	
43	.....	27.354	.....	
44	44.250	.....	44.250	
45	59.854	.....	59.854	
46	.....	49.021	.....	
47	75.562	.....	75.562	Weber River and Cañon.
48 & 49	131.479	.....	128.479	
50	85.500	.....	80.500	
51	58.521	.....	66.521	
	2.414.125	128.729	2.414.125	

TABLE

*Showing the Distance, Difference in Elevation, and the Average Grade per Mile, between some of the principal points on the preceding Line.*

FROM	TO	Distance in Miles.	Difference of Elevation.	Grade per Mile.
Provo.....	Mouth of Cañon.....	5.417	264.407	48.81
Mouth of Cañon.....	{ Entrance Wall's Ranch }	13.331	496.308	37.23
Entrance Wall's Ranch }	{ Valley..... }			
Provo Valley.....	Provo Valley.....	2.250	53.438	23.75
End of Provo Valley....	End of Provo Valley....	10.000	476.604	47.66
Kamas Prairie.....	Kamas Prairie.....	8.262	529.846	64.13
Jno. Packs' corral, K. P..	Jno. Packs' corral, K. P..	2.412	95.156	39.45
Mouth of Weber Cañon...	Mouth of Weber Cañon...	5.737	107.344	18.71
End of Line.....	End of Line.....	3.587	262.283	73.12
		50.996	2,285.396	44.81

## APPENDIX No. 2.

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### Report of Prof. JAMES T. HODGE, Geologist.

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TO THE PRESIDENT AND BOARD OF DIRECTORS OF THE  
UNION PACIFIC RAILROAD COMPANY :

GENTLEMEN : In accordance with your instructions of October 15th, 1863, I proceeded forthwith to the Rocky Mountains for the purpose of investigating the capabilities of the region near the surveys for the Union Pacific Railroad, for making iron and producing mineral fuel.

By the overland stage line I reached the base of the Black Hills at Laporte, on the 1st of November, to find the country covered with snow, rendering geological explorations altogether impracticable. Here I was detained a week, waiting for the surveying party I was to join, which was fitting out at Denver.

On the 8th I had crossed the Black Hills, and in Laramie Plains I first had an opportunity of investigating the mineral character of the country. In the prairie hills, three miles south 30° east by compass, from the stage station, called "Big Laramie," (from the name of the river, on the banks of which it stands), I discovered a lean iron ore, intermixed with veins of calc-spar, outcropping in flat bands, almost black in color and in considerable quantity. Similar ore is again met with covering the surface of the prairie on a direct line toward the stage station. It is a hematite at the surface, probably from atmospheric oxidation of a carbonate of the character of the clay iron stone, such as is found in the coal measures. The geological formations in the vicinity are shales of olive, bluish, and brown colors, associated with slaty calcareous strata, which contain sharks' teeth and other fossils, that refer the group to the cretaceous period. Plates of selenite are abundant, scattered on the surface of the shales.

Over the plains nearer the mountains to the east, are occasionally met outcroppings of a reddish sandstone, and a very close-grained, compact limestone of light shades, flesh, straw, pink, blue, red, and some nearly white. This limestone would answer well for a flux in smelting iron ores. Coal is reported to be found near the forks of the Laramie in these plains, and is probably of similar character to the same mineral worked near Denver (to be afterwards noticed), which also is associated with iron ores and limestones.

Though the iron ores I discovered, appear too lean to be valuable, they afford a clew as to the geological relations of the ores of this region and the localities where they are most likely to be met with.

Approaching the Cheyenne Pass from the West, small rolled pieces of hematite are found, both in the wagon road and also on the side of a prairie hill a quarter of a mile north from it, which hill is capped by ragged ledges of red limestone in horizontal strata. The pieces of ore are smooth and hard, and the quality is excellent, but there is no certainty of quantity sufficient for working. Further explorations, however, may lead to more important discoveries. Should such be made, iron works might be established near the mountains, on one of the branches of Laramie River. Several tributaries to it of clear water, never failing, run through the valley, seldom, however, with sufficient fall to afford water-power. The limestones may be depended upon for flux; and fuel will be afforded either by the beds of mineral coal, or by the pines of the mountains. The region, however, is generally deficient in good timber; none is seen on the prairies, and the growth upon the mountains is scattered, and for the most part thin. It consists almost exclusively of pines, balsam fir, and quaking aspen. Of these the first will make suitable charcoal for smelting iron ores. Until recently such fuel alone supplied the blast-furnaces on the shores of the Chesapeake, at Baltimore and its vicinity. In the mountains further South I afterward found spruce trees accompanying the pines. The Medicine Bow Mountains, on the west side of Laramie Plains, appear to contain a heavier forest growth than the Black Hills, and should iron ore be found on that side of the plains, it might prove a better region for the

manufacture of iron than the eastern side. I proceeded as far west as Fort Halleck, on a branch of the Medicine Bow Creek, and at the northeast base of Medicine Bow Mountains, and sought to ascertain the locality of iron ore on this creek, reported by Mr. Engelmann, who accompanied the expedition of Lieut. Bryan. I saw the interpreter and guide of this expedition, Mr. Duval, who is still in Government employment at Fort Halleck. He was entirely ignorant of any such discovery. I learned, however, of the occurrence of coal-beds, said to be of large size, in the prairie hills six miles northeast from Fort Halleck, and made several ineffectual attempts to find them. The east side of the hill, where they were discovered, I found covered deep with snow, and though I remained eleven days at Fort Halleck in hope of a favorable time for exploration, it was for nearly the whole period almost impracticable for one to cross the prairies, and dangerous to leave the stage road. The wind every day blew with extraordinary fury, sweeping the snow forward, and piling it in deep drifts in the cañons and gulches, and on the lee or east side of the hills. For days together a man could with difficulty stand up against it, and the driving snow often prevented his seeing one hundred yards in any direction. During this time the thermometer ranged from zero to 10° below. It was the first day of December when I reluctantly left this portion of the Rocky Mountains, in despair of making in it any useful geological observations at so advanced and inclement a season.

Before going to Fort Halleck, I accompanied the surveying party of Mr. B. B. Brayton through the Black Hills, on the Cheyenne Pass, leading from Lodge Pole Creek to Salt Lake, and it is for the sake of completing my account of the plains west of the Black Hills, before proceeding to that of the mountain district and the plains to the east of it, that I have introduced above my remarks upon the country about Fort Halleck.

At the Cheyenne Pass the Black Hill range, extending due north and south, presents a very uniform slope on its western side, but little interrupted by cañons, such as are of frequent occurrence in other portions of the Rocky Mountains. This slope, nearly to the summit, is that of the limestone strata, which, uplifted from their horizontal position in the plains, here form



the outermost layers of the range. In a gorge near the base of the mountain they are exposed to the thickness of full twenty feet, which is probably but a small portion of the real thickness of the formation. The rock is in broad, flat blocks, admirably suited for building stones, and much of it, though never crystalline, appeared as if it might make a substantial marble of fair quality, but not of bright colors. I could discover no fossils in it. Beneath this rock, exposed in precipitous ledges along the gorges, and curving up from under it at the summit, is a red silicious sandstone, resembling the Devonian red sandstone of the Alleghanies. It covers the surface of the hills lying north of the Pass, spreading out over broad areas in nearly horizontal strata. These toward the east abut in bold cliffs, and next beyond them in this direction appear the granitic and porphyritic rocks, which make up the central portion of the range. The only distinct fossils I could find in the sandstone were small encrinurites. Neither this formation nor the limestone is likely to afford any useful minerals, though the latter may possibly prove a repository in occasional localities of hematite. Professor James Hall, of Albany, to whom I have submitted specimens of both the limestone and sandstone, refers the group to the carboniferous formation of the age of the true coal measures.

The rocks which compose the mass of the Black Hills, are red granites, red sienites, and red porphyritic sienites. They form not only the high ragged peaks and groups of rough hills that lie to the north and south of the pass, but the smoother surface and prairie-like hills of the pass itself are also underlain by the same formation. A peculiar feature it everywhere exhibits is a decided tendency to disintegrate and crumble into coarse angular fragments. The surface is very generally covered with these, which make a poor soil enough, but the very best of roads. The wagon-road through the pass, though unimproved by any labor upon it, is for the most part unsurpassed in smoothness and durability by any macadamized road. This tendency to disintegrate is also the cause of the numerous peaks and monument-shaped masses of all sizes, standing on the steep mountain slopes and summits, and also scattered over the smoother and level portions of the mountains.

Some of these appear like the boulders of northern latitudes, perched upon ledges, from which they could be easily tipped off. Others resemble icy masses along a frozen coast, as they melt away on the approach of spring. In some instances, when the disintegration has gone on most rapidly at the base of tower-like masses, huge blocks have parted from the main body to which they belonged, and have fallen down, exposing a fractured and nearly smooth face, sometimes of several hundred square feet area. In general, the outline produced by the disintegration is rounded like that of rolled boulders. I could find in these formations no metallic veins, nor any features that would lead me to look for iron ores in the central part of the range. No mica nor talcose slates accompany the granites, and the only variation in the rocks is as they become more or less sienitic or porphyritic in their composition. Numerous quartz veins, however, are seen toward the eastern side of the pass, crossing the road in a northerly and southerly direction, and projecting above the surface, which in their vicinity is covered with loose pieces of this mineral. These veins resemble the gold-bearing quartz veins of the Southern States, but are unlike those of the Colorado mining district. The granites also of that part of the Rocky Mountain range are very different from those of the Black Hills, being of light colors and gneissoid in structure.

On passing out from the central range toward the plains on the east side, one everywhere meets facing the mountains, a range of high precipitous cliffs of red sandstone, the lower layers often conglomerates. These rocks present a thickness of full 500 feet, and as the lowest strata are not exposed, the formation may be much thicker than this. It is evidently a repetition of the same sandstone group that caps the summit on the west side, and passes under the limestone that forms the western slope. This rock, too, lies in the same relative position to the sandstone on the east side, capping the cliffs in some instances, and also forming a parallel outer range of hills, the strata still dipping east.

All along the east side of the Black Hills, as far as I observed them, and further south, where these hills are lost in the main Rocky Mountain range, this group of marginal cliffs is traced, and everywhere they present a striking feature in the topogra-

phy, all the more marked by the bright red color of the sandstone. Their forms at the Cheyenne Pass, and again at Boulder Creek, Colorado, are represented in the accompanying sections and sketch, and their range is designated in the ground plan or map. The hills appear to have once formed a continuous unbroken line, the western summit presenting a bold escarpment, the base of which is covered by the *debris* fallen from above. This constitutes the gentler slope seen in the section at the western foot of the hills. The eastern slope is that of the strata, and the surface on this side is frequently in chief part that of the rock itself, scantily overgrown with sage bushes, cactus, and grass, that have taken root in the crevices. Behind the first range, with an intervening valley sometimes nearly a mile wide, but much less further south where the dip of the strata is very steep, is a second range of precisely similar form, and near the Cherokee Pass, where the stage-road crosses the mountains, I have observed a succession of four or five such ranges, the outermost one dying away in reduced dimensions in the prairie to the east. Their covering of snow prevented my studying the structure.

At the entrance to the mountains at Clear Creek, Colorado, there is seen extending several miles north and south, outside of this range of hills, another group of basaltic formation. The hills composing it are all remarkable for their peculiar tabular form, being perfectly flat on the summit, which is bounded on all sides by vertical walls, apparently a hundred feet high, of rudely columnar greenstone or hornblende rock. The summits are sometimes several hundred acres in area, and at others (as on one of most striking appearance just east of Golden Gate City) the extent does not seem to be more than three or four acres. In this, however, one may be deceived by the great height of the hill, which is probably full seven hundred feet above its base. These are the only hills of this formation I saw in the Rocky Mountains. Their position is represented in the map, and their form among the sections accompanying it. The soil near their base is quite fertile, and is often cultivated for some distance up their very steep slopes. This group, as also the more extended range of sandstone hills behind them, traced north and south, are seen to be interrupted

at intervals of half a mile to a mile and a half by gaps, all of which are worn down to about the same level, which may be 300 to 500 feet below the summits. The mountain streams find their outlet through these gaps, and all the roads into the mountains pass up by the same openings. The rounding away of the ends of the hills in the gaps toward the east—the direction of the dip—keeps exposed the strata, which in the face of the escarpment further west, occupy a much higher position; and to an observer facing the escarpment the impression is conveyed, that in each hill the strata at its northern end dip north and at the southern end dip south. In the middle of the face they appear to be horizontal, the baset edges only being in view.

The peculiar form of these hills is obviously due to powerful denudation directed from the central range eastward. On the shorter western slope of the Black Hills the effects of the same action in the opposite direction are less strikingly exhibited in the abutment of the same sandstone formation, which, as already noticed, is seen on that side near the summit of the range. Other evidences of extensive movements over the surface from the main Rocky Mountain ranges eastward, will be presented in describing the formations examined further south.

The lower members of the limestone formation at the east entrance of the Cheyenne Pass are remarkably intermixed with various forms of silex, as flint, jasper, carnelian, and chalcedony, which sometimes present a rude agate structure. The flints are of many different colors; the jasper is in fine blocks of clear red. The sides of some of the hills are covered in places with fragments of these minerals—the flints and limestone often attached together.

The operations of the party I accompanied being limited to the pass, I had no opportunity of extending my observations into the plains on the east side of the Black Hills. I had already become satisfied that it is in the plains, and not in the mountains, that the minerals I was in quest of are to be found, and after abandoning further explorations west of the mountains, I proceeded to the region south of Laporte to investigate the character of the beds of coal and iron ore there opened and worked. The range of the formations, I had learned, would carry these

beds northward near the Black Hills, and a knowledge of their properties, which could be obtained in a comparatively settled country, though still covered with snow, would be useful in directing further explorations in the wild districts about the Cheyenne Pass to one provided with the necessary facilities for conducting them in a more propitious season. It was after leaving the pass that I learned from Mr. Duval at Fort Halleek, of the occurrence of iron ore in large quantity on the branches of the Chugwater, about twenty miles north from Camp Walbach, which is an old deserted camp at the east entrance of the Cheyenne Pass. His description of the ore as heavy and massive, with no appearance of a vein or "lead," would apply very well to the localities I afterward examined on South Boulder and Rock Creeks, Colorado; and I imagine the ores of the two districts are of the same character. I was afterward directed by two other old explorers of these regions to the same locality, as the only one where they had observed any iron ores; and another pointed out the same district as containing coal also. It therefore appears to be the most promising spot for subsequent explorations north of the stage route.\* At several other localities in the plains there are reports of coal being found. Somewhere on Lodge Pole Creek it is actually worked, to small extent, for supplying in the winter the stage stations near the mouth of this stream. There is also a bed in the plains about seven miles north from the stage road, between Laporte and Latham. This I endeavored to find, but there was no road to it, and the country was covered with snow. A number of these localities are designated upon the map on both sides the Black Hills, as also north of the range on a small branch of the North Fork of the Platte, known as "Trading-house Creek." They indicate satisfactorily the great extent of the area over which beds of coal may be sought with good prospect of finding it. It has been supposed that a bed of it might be found in the black

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\* On referring to the report of Captain Stansbury since the above was written, I find on the closing page the following remarks respecting the locality:

"In the bed of the Chugwater, and on the sides of the adjacent hills, were found immense numbers of rounded black nodules of magnetic iron ore, which seemed of unusual richness."

shales, exposed along the road eight miles south from Laporte; but the few imperfect fossils I found here discourage this expectation; as they are referred by Prof. Hall to the tertiary formation.

It is only in the vicinity of Denver, which affords a market for this fuel, that beds of it are worked to any extent. On Coal Creek and on South Boulder Creek, both about twenty-two miles north from this town, a number of beds are opened on the former creek, about fourteen miles east from the base of the mountains, and on the latter within three miles of it. On Coal Creek the outcrop of the coal is at the base of a high hill or ridge, rising back toward the east, and washed at its foot by the creek, which seems to have excavated its bed for some distance in the soft materials of the coal and of the fire-clay beds, that underlie and overlie it. One of the openings commences at the base of this ridge in a heavy body of blue fire-clay, which forms the roof of the coal; and penetrating this, passes into the coal bed itself, which presents a thickness of five feet ten inches pure coal with no mixture of slate. The tunnel has been carried in over one hundred feet, and for this distance the strata are seen to incline at a gentle dip not exceeding  $2^{\circ}$  or  $3^{\circ}$  toward the north. The coal is of a brilliant jet black, and is easily mined in large lumps, which appear to be firm and sound. I am informed, however, that after exposure a few weeks to the air, the lumps crumble to fine coal, and for this reason no large stock of it is kept in the coal-yards at Denver. Should the coal not be found to improve in this respect when mined to greater depths, or in other beds not yet opened, there may be difficulties in applying it to the smelting of iron ore, from the small particles clogging the furnace; it may also work to disadvantage in locomotives by sifting through the grate bars. The coal seems to contain but little bitumen, burning with little smoke, no unpleasant odor, and a yellow flame. It does not melt nor coke, and however high the draught, produces no clinker. The ashes of most of the beds are usually white and bulky. A blacksmith who uses it informed me, that he can obtain a welding heat with it in a forge, but with difficulty. Sulphur is observed in it in small quantity in the form of exceedingly thin disks of iron pyrites disseminated through

the seams. Particles of mineral rosin are much more abundant, scattered through the coal, the pieces being of the size of pin-heads. Several other beds of coal have been discovered in the same vicinity; and one of these, a few rods to the southeast from the point already described, is worked to some extent. This coal bed appears to be an upper one, but though so near the other it has an entirely different dip, which is about  $18^{\circ}$  east. It is in two positions, the upper being seven feet thickness of coal, separated from the lower, which is four and a half feet thick, by a stratum of dark blue fire-clay eighteen inches thick. The fire-clay appears to be of excellent quality for the manufacture of fire-brick. The mine is worked by following the coal-bed down the slope, and the coal is drawn up on cars by a capstan. No trouble is experienced from water, though the opening already extends about a hundred feet under the hill. The other bed also is dry. I found the workmen attempting to coke the coal of the second bed described, which they thought possessed a better coking quality than that of the other bed. The coke, though very inferior, and obtained only in small pieces, was purchased by the blacksmiths around in preference to the raw coal. A strong fuel such as good coke is of great value in this region, as is shown by the fact of its transportation all the way from Kansas to the machine shops at Central City in the Colorado gold region, where more than a hundred tons of it have already been consumed at a cost of \$160 per ton.

The strata accompanying the coal-beds differ in some respects, so far as I could see them, from the strata of the true coal formation. There was the same variety of fire-clay, but the beds of it under the coal contained none of the stigmaria everywhere else found in this position. I saw no stems and leaves of ferns, but in the fire-clay over the coal, I obtained imperfect fragments of blackened deciduous leaves. Clay iron stone in nodules and layers occurs in the fire-clay. I was told of two layers, together eighteen inches thick in depth of fire-clay. I saw no beds of black shale, nor are any of limestone found in this formation: a few feet above the upper coal bed is a crumbly sandstone of a light gray color. On the extension of this ridge, two and a half miles further north, I examined some ledges which projected through the snow, the position of which I judge is over the coal

and not very far from it. These are thin bedded sandstones of yellowish color, and other layers more compact of bluish shade. The latter contained fossils shells, the substance of which is sometimes well preserved. They are recognised by Prof. Hall as belonging to the genera, *cardium*, *cucullea*, *mastra*, *nucula*, *tellina*, and *ammonite*; thus designating the formation to be as old as the cretaceous period. The deciduous leaves in the fire-clay determine the coal, or rather lignite beds, as belonging to the same formation.

The other coal district is in the hills along South Boulder Creek, only two and a half miles from the base of the Rocky Mountains. Several beds have been opened, and two of them are worked for the supply of the Denver market. This locality also affords an abundance of iron ores, and has been selected for the establishment of the first blast-furnace erected in the territory. This is nearly completed, and will probably go into operation in March. The principal coal-bed is opened a few rods southeast from the furnace, and has been worked one hundred feet down a slope of about ten degrees from the horizontal toward the east. The bed is twelve feet thick, almost uniform in quality, with no intermixture of slate, and presents a beautiful appearance in the brilliant lustre of the coal. A little sulphur (pyrites) may here be detected in the seams. It was from this bed that the first specimen analyzed by Dr. Torrey, whose report accompanies this, was obtained. A second bed is opened about half a mile from the furnace toward Denver. Though further from the mountains, this bed is nearly vertical. It is about seven feet thick, and has been worked to the depth of fifty feet, the coal being raised by means of a horse-whim. A third bed, three to four feet thick, just opened on the north side of the next hill east from the first named coal-bed, is found to be nearly horizontal at its outcrop. This promises to afford coal of a firmer quality than is obtained from the beds heretofore worked.

Other beds are known in this vicinity; and both here and at Coal Creek some of them, I was informed, are consumed by fire, caused, it is supposed, by spontaneous combustion produced by oxidation of the pyrites in the coal.

The fire-clay beds contain the clay iron stone, as on Coal Creek, but no attempts have been made to ascertain its quantity



or quality, and I could not anywhere see it in place. The dependence of the furnace is upon irregular deposits of a shelly hematite, locally known as "top hill ore," found scattered over the summits, ends, and slopes of many of the ridges which border South Boulder Creek and Rock Creek. These deposits extend to a depth of only one to three feet, and as they evidently do not form a part of the strata in the hills, it is impossible to make any estimate of the quantity of ore they will afford. One can judge only from seeing numbers of acres thus covered, that supplies may be obtained for one or more blast furnaces for several years; but extended observations would be necessary before positively asserting that large works could be supported from this source. The ore is found in pieces of all sizes, up to masses of half a ton weight, and large quantities of it are so fine, that it would have to be collected for the furnace by screening. There is scarcely any intermixture of foreign stony materials in these deposits. The quality of the ore is generally pretty good, though the larger masses are not so fine grained and pure as the smaller ore. I should judge that an average of three tons would be required to make a ton of iron. The ore is in excellent condition for the blast furnace, its long exposure at the surface having prepared it for smelting almost as thoroughly as if it had been roasted. Its unusual mode of occurrence, unconnected with the strata in the hills, was for some time a source of perplexity; and it seemed necessary to explain it correctly, in order to judge better of the probability of the ore being found in large quantities in other places on the range of these formations. On examining the country up to the base of the mountains, I discovered what I believe is the true explanation. At the distance of two and a half miles from the mines, the marginal ridge, already noticed, rises suddenly with a very steep face and dip of its strata, as represented in the section. The surface at its foot is covered with large rounded boulders from the granite rocks of the mountains. Some, also, are of the red sandstones and conglomerates of the outer ridge. They decrease in size and numbers towards the east, indicating the movement in that direction of vast bodies of water or ice. These, together with the evidences of denudation I had observed further north, evidently not referable to the diluvial or drift formation, appeared to me

as more strongly marked evidences of glacial action than I had ever before seen. The extension of this over the hills near the furnace must have excavated the soft beds, of which they are in great part composed; and the light clayey materials of the strata containing the iron ores being swept away by currents of water, these, by their weight, were left behind, and are now found spread over the surface of the hills. By long exposure they have been oxidized and converted from the clay iron stone, or "blue core ore," as it is here called, into the shelly hematite. Such a derivation of the ore, if correct, must itself make the quantity in any locality always uncertain. Found as it is, it is collected and delivered at the furnace at a cost of \$3 per ton, making about \$9 to the ton of iron.

Most of the materials required for constructing and supplying blast-furnaces, are found in great abundance at this locality. Sandstone of superior quality for building is quarried from extensive ledges, that outcrop on the summit of a ridge within a few rods of the furnace. Blocks of it of uniform thickness are obtained of any desired size. It presents a fine appearance when cut, as seen in the small furnace, which is built of stone thus prepared. The fire-clay beds afford material for fire-brick, with which the furnace is lined; and stones supposed to be sufficiently refractory, found near by, are used for the hearth and boshes of the furnace. An excellent limestone, both for mortar and flux, is found in a little ridge close at the foot of the marginal sandstone hill, along the edge of the mountains, the position and form of which are indicated in the section. In the quarries just opened into this rock, I was so fortunate as to find a few well-marked fossil shells, which will probably determine the age of this formation, as well as of what I believe to be the same limestone, before described as occurring on both sides of the Black Hills. Good clay for common brick is abundant throughout this region. It is largely worked about Denver, where bricks are sold for \$8 to \$10 per thousand. On Rock Creek, a few miles from the furnace, at the crossing of the road to Denver, an establishment has been in operation for the manufacture of coarse articles of pottery. It is, however, now abandoned. The fuel with which it is intended to supply the furnace is charcoal, made from the pines of the mountains. The

owners of the works requiring only a moderate supply of good iron for their foundry and machine shop at Central City, are not disposed to try experiments at once with the mineral coal so near at hand. They estimate the cost of charcoal at the furnace at ten cents per bushel. The wood is cut by contract at \$1 per cord, which is about three cents to the bushel of coal. The coaling will cost three to four cents per bushel, and the hauling the remainder. A difficulty is experienced in making charcoal in this region from the want of good turf for covering the pits. The light soil of the prairies or gravel of the mountains soon falls through among the wood when this is fired.

The furnace, owned by Messrs. Langford, Lee and Marshall, is a very small stack, of daily capacity of only four or five tons of pig iron. It is twenty feet square at base, twenty-two feet high, and seven feet diameter at the boshes. The hearth is five feet high and eighteen inches diameter. It is intended to work the furnace with cold-blast, and the consumption of charcoal will probably be from two hundred and fifty to three hundred bushels to the ton of iron. The cost of fuel in this case will be from \$25 to \$30, while that of ore, as above stated, may be rated at \$9. The cost of the limestone for flux will probably not exceed fifty cents, and the remaining items of labor, repairs, &c., may be estimated at about \$7. The total cost will probably be about \$45 per ton of pig metal. In large establishments the expenses should be less, especially if the raw mineral coal could be substituted wholly or in part for the charcoal. The quantity of fuel, too, would be diminished by the use of the hot blast.

The prairie country bordering the mountain toward the east, which presents the same geological and topographical features through Colorado to the North Fork of the Platte River, will, no doubt, be found to afford throughout this extent similar resources for the support of a population dependent upon agricultural and manufacturing pursuits. Though deficient in forests, the lack of wood will be compensated by the abundant supplies of mineral coal, the existence of which has already been detected, even to the southern portions of Colorado. In that region there are also found springs of petroleum, and the manufacture of kerosene oil is already carried on to small extent near Cañon City, for the supply of the Denver market.

The agricultural resources of the prairies are somewhat limited by the extreme dryness of the climate. Rain seldom falls, and were it not for the never failing supplies of water in the numerous streams running from the snowy central range of the Rocky Mountains, the country would be an uninhabitable desert. Yet the soil is in great part fertile, warm and mellow, and abounds in gypsum and salts of soda, which appear upon the surface in the form of a white incrustation resembling frost. This is particularly abundant around the edges of dried up ponds. The alkaline salts affect the waters of many of the wells, rendering them nauseous to the taste and unwholesome, and mixing with the dust of the roads this is said to be in the summer season very injurious to the eyes of travellers. It is remarkable, that notwithstanding the want of rain, no great trouble is experienced over the plains for the want of water at the ranches and stations along the roads. I crossed the Platte River at Fort Kearney in October, over its dry sandy bed, and yet the wells along the valley contained abundant water, and in general they were not twenty feet deep, their bottoms not reaching to the level of the stream. It is difficult to explain from whence these supplies are derived. The dryness of the soil renders irrigation necessary for its successful cultivation, and this is already practiced to a considerable extent in Colorado after the system of the Mexicans, which consists in the excavation of *acequias* or ditches, often several miles in length, by which the water of the streams taken out at an upper level, is carried at this elevation past the farming lands, over which it is let out as occasion requires by tapping the *acequias* at any desired points. The cultivation is thus limited to lands lying below the level of the *acequias*; and such lands are met with of considerable extent along most of the streams, spreading out to great width, even before these have fairly emerged from the mountains. Very productive and extensive farms thus situated are seen running up among the basaltic hills on Clear Creek, and similar improvements extend all along this stream to its mouth below Denver. The streams north of it, so far as, and including the *Cache á poudre*, afford the same advantages for cultivation of the soil, and along most of them the lands are occupied in continuous lines of farms. In the newness of the

country, which has been occupied only two or three years, the crops are limited to a few of the most necessary articles. Flour being supplied to the territory from the States and New Mexico, the cultivation of wheat is not so important as of the more bulky articles, which will not pay for transportation from such distances. Some wheat, however, is raised, and the crop is a successful one. But attention is chiefly directed to procuring the large supplies of hay, corn, oats, and vegetables, required by the numerous gold-mining population in the mountains. The hay being made from the wild prairie grass, its supply is limited only by the amount of labor employed in cutting and stacking it; still, owing to an overstock of it the previous year, the quantity put up in 1863 has proved too small for the demands of the country, increased as they are by the extraordinary accumulations of snow, which, covering the plains, cut off the herds of cattle and horses, with which the country is abundantly stocked, from their accustomed support by grazing during the winter. This, together with the obstructed condition of the roads caused the price of hay in December last, to rise to \$105 per ton at the gold mines. Corn, which is a good crop, and may be raised to any extent along the streams, was worth at the same time nine or ten cents per pound. Potatoes are produced in abundance, as also onions, cabbages, and many other vegetables; but in this unpropitious season the prices of all these range very high. Onions are raised with scarcely any of the labor attending their cultivation in the States, yet they were from ten to twelve cents a pound. They grow so luxuriantly that a single one often weighs more than a pound. Such prices cannot be sustained in a favorable season, and particularly when the country is supplied with a more numerous agricultural population.

It is an important question, whether the cultivation of these prairies is always to be limited to those portions capable of being irrigated only by the system now in use. The mountains, it appears, are abundantly provided with water, derived chiefly from the melting of the snows in the great Central Range. A large part of this, without doubt, penetrates under the stratified rocks, which on both sides dip away from the mountains. These waters probably flow in underground channels far from the mountains, and if tapped by Artesian wells sunk down to them, they might

reasonably be expected to rise to the surface in never-failing springs. The stratification of the country is certainly remarkably encouraging to such an enterprise; and another inducement to its prosecution would be the discovery of the mineral beds, whatever they may be, beneath the surface. This would be a certain and most economical method of determining the existence or non-existence of beds of coal in localities where it might be especially desirable to obtain this fuel. Artesian wells must at some time be exceedingly useful at Laramie Plains, which are not so well watered as the country east of the mountains. These plains, hitherto entirely uncultivated, afford in places good pasturage, and a considerable amount of prairie-grass hay, for the use of the overland stage line and of emigrants.

I left Colorado on the 19th of December, and being delayed several days in my journey through Iowa by the extreme severity of the winter season, arrived in New York on the 9th of January.

Very respectfully, I am yours,

JAMES T. HODGE.

New York, January 22, 1864.

New York, February 13, 1864.

J. T. HODGE, Esq. :

Dear Sir,—I have carefully examined and analyzed the samples of coal, that you brought from the Rocky Mountains and placed in my hands. The specimens, according to the labels attached to them, are from two localities, viz., Coal Creek and Boulder Creek.

Those from the former place were taken, as you state, from a bed more than ten feet in thickness. The mineral has nearly the hardness of ordinary anthracite, but is much more brittle. The fragments are often cuboidal or rhomboidal, and in some of them a little anisotropy was detected. The lustre is bright and shining. The coal does not stain the fingers. The powder is

black when viewed in a heap, but when a thin film of it is spread upon a white surface, it has a slight tint of brown. Specific gravity, 1.29. When heated in a glass tube, the temperature of which is gradually raised to 400° or 500° F., it gives off water, the last portions of which contain a little empyrenumatic oil or tar. At a dull red heat it takes fire, burning with a bright yellow and smoking flame, emitting an odor between that of heated bituminous coal, and that of imperfectly burning wood. Some of the fragments gave out a slight odor of sulphur, which was traced to minute scales and spangles of iron pyrites, scattered here and there among the lumps. Compared however with most bituminous coals, this mineral fuel is remarkably free from sulphur. When submitted to analysis, it yielded the following results :

Water in a state of combination, or probably its elements, as in dry wood.....	20.00
Volatile matter, expelled at a red heat in the form of inflammable gases and vapors .....	19.30
Fixed carbon .....	58.70
Ash, consisting chiefly of oxide of iron, alumina, and a little silica.....	2.00
	<hr/>
	100.00

The ash is mostly reddish, but sometimes light gray. Another specimen contained only 16 per cent. of water.

The coal from Boulder Creek, which occurs in a bed four feet thick and in another ten feet, has a general resemblance to that from the other locality. It is, however, more dense, having a specific gravity of 1.4, and is less brittle, and the fracture is not so glossy. It contains also flakes of mineral charcoal scattered through the mass, and the proportions of its constituents differ considerably from those of the Coal Creek bed, it being a stronger fuel. It contains a little sulphur like the other. The composition is as follows, viz. :

Water in a state of combination, or its elements.....	12.00
Volatile matter expelled at a red heat in the form of inflammable gases and vapors.....	26.00
Fixed carbon.....	59.20
Ash, of a reddish color, or sometimes gray.....	2.80
	<hr/>
	100.00

From the characters and analyses of the specimens here described, it will be seen that the Rocky Mountain coal belongs to the class of lignites, and that it is not technically a bituminous coal, neither cannel nor an anthracite. Still in common parlance it will be regarded as coal. The geological character of the rocks in which the mineral is found, will, I suppose, be given by yourself and Professor Hall. In calorific power the Rocky Mountain coal may be placed between dry wood and bituminous coal, and therefore it is a most valuable fuel, especially where bituminous coal and anthracite are not likely ever to be found, and fire-wood is difficult to procure. I see no reason why it may not be used for the smelting of iron and other ores. For locomotives it could be employed to advantage, with some modification of the fire-place. The ash is so small in quantity, and so light, that most of it would be carried off by the blast of the furnace. From my own trials, I find that the coal burns freely in a small stove, making a hot and clear fire, and leaving no clinkers. The specimens that I have examined show a tendency to break up and crumble after they have been soaked with water and allowed to dry, so that it would be well to preserve the coal as much as possible from being wet by rain. The lumps that you brought home from your journey show no disposition to crumble in a *dry place*.

In conclusion, I remark, that the discovery of such extensive beds of a good mineral fuel is of the highest importance to the section of country in which they occur.

The iron ore is limonite, commonly known by the name of brown hematite or brown iron ore. It is a compact variety and is certainly derived from carbonate of iron, some of which in an unaltered state is evident in one of the specimens. The carbonate will probably be found in larger proportion, as the



beds are worked further in beyond the reach of atmospheric influence. There is reason to believe that the iron obtained from this ore will be of good quality.

Yours respectfully,

JOHN TORREY.

## APPENDIX No. 3.

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### Report of F. M. CASE, Civil Engineer.

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COLORADO TERRITORY, }  
Denver, August 15th, 1862. }

HON. JOHN EVANS, Gov. .

Col. Territory :

SIR,—In submitting to you this report of my late instrumental reconnoissance of the Berthend Pass and its eastern approach, with the view of its being by you laid before the Board of Corporators of the Pacific Railroad, I am aware that the facts which will be of real interest to practical railroadmen are very meagre, yet, as many misrepresentations have been made upon mere opinion, the few facts I have gleaned may be of interest to the Board of Corporators of which you are a member.

I have had a connected line of levels run from the Platte River (at the upper bridge in Denver) to the summit of the Pass and two and three fourths miles down Moses Creek, on the Pacific slope. From one mile below Empire City a transit line has been run over the Pass—levels have been run up Clear Creek, a mile and a half above the mouth of Hoopes Creek, opposite the pass, and also from Empire City to the low pass between Bard Creek and the south fork of Clear Creek. Between this low pass and Georgetown, one and three fourths mile south, the relative elevations have been ascertained by barometric observations, by Dr. Parry, a gentleman who is spending the summer near the Range, making scientific explorations.

I submit herewith a map of the route from about one and a fourth miles below Empire City, westward, embracing the Pass, giving a very fair representation of the topography of the country in the vicinity of the Pass, with the relative elevations at certain points, as ascertained by the levels. Upon this map I have drawn a proposed location of a railroad line, which, in my

opinion, will be near the most practicable route for the real location. The length of the tunnel I make three and a half miles. I have made this length by supposing an up grade of fifty feet to the mile, running westward in the tunnel from the entrance, for two miles, and thence running a down grade of ten feet to the mile, to the exit.

An up grade in the tunnel of one hundred feet to the mile for the first two miles, instead of fifty, would shorten the tunnel about one-fourth of a mile. The grade, as you will notice, is less than 116 feet to the mile from the forks below Empire City to the tunnel, but the equation for curvature, on the line I have drawn, would probably bring the grade up to this maximum.

This range of mountains, on its eastern slope being subject to a very considerably less fall of rain during the year than the Alleghanies or New England mountains, are much less disintegrated, and are fitly called "Rocky Mountains." The mountains on either side of the valley of Clear Creek are "rugged," with frequent points of rocks projecting into the valley; for this reason I have drawn the line so as to get down into the valley with the grade as soon as possible. Yet, let me say here, that the granite of these mountains is of a very different quality from the eastern granite. It is very much softer, and in cuts near the surface could be removed without blasting. Experience in mining for gold has shown, that the granite two hundred feet below the surface is also of a much softer quality than the eastern granite.

I might say in this connection, that there would be a *possibility* of striking rich gold lodes in the construction of the tunnel, for it is in the "Gold Belt," there being lodes on each side of the pass, yet, I would not like to undertake the construction of the tunnel with the understanding that I should take this "possibility" in "part pay."

Of the Western approach to the Pass I will hazard no opinion as to gradients or courses. The Western slope of the Range seems to be covered with a much deeper soil, as it is covered with a much denser foliage, which is doubtless owing to the arrest and precipitation of the spring and summer rains by the snow of the Range; the prevailing winds being northwesterly. This fact, in case of having to keep the mountain sides to get

down to the valley of the Grand River, would render the cost of construction much less than upon the Eastern Slope.

I have made considerable inquiry as to the winter snows in the neighborhood of the Pass, and find that at Empire City, they have wintered cattle every winter without hay. From all the statements of settlers on the experience of three winters, I am of opinion that the winter snows would form no serious obstacle to the running of railroad trains from the tunnel eastward. About three-fourths of a mile from the Pass, on the western slope, we passed a camp where a family were snow bound last winter, for some weeks, and judging from the height of the stumps of trees cut by them while there, should think the snow must have been five or six feet deep. This depth, from all the information I can glean, would be about a fair average for about fifteen or twenty miles west of the Range, in the vicinity of the Pass. The prevailing winds being from the northwest, the snow piles in immense drifts on the southeastern slopes of the range. These slopes, in the vicinity of the Pass, being very precipitous near the summit, arrest the snows before they reach the valley of Clear Creek. This fact may account for the light fall of snow near Empire City.

In this connection, let me call your attention to another fact, resulting from our peculiar climate. The streams, in the mountains, are not subject to the sudden rise and fall of eastern streams. Fed as they are by the melting snows, and regular diurnal rains, they rise gradually until they reach their maximum height, usually about the middle of July, and then as gradually recede. This known fact might materially lessen the expense of construction of a railroad, up the valley of Clear Creek, in keeping the grade nearer the surface of the water, and in not having to guard against the sudden rise of the stream.

I also, submit a sketch of the valley of Clear Creek, from Empire City to near its junction with the Platte; which, I think, is approximately correct, showing the general course of the creek, and the relative position of the different points at which elevations were taken. I have copied part of this sketch from my official maps, part from a survey of the first ten miles of the Cañon of Clear Creek, above Golden City,

made by Mr. F. J. Ebert of this place, and the balance from a map of Mr. E. L. Bertheud, of Golden City.

The following table will show very nearly, the distances between the points at which I have ascertained the elevations above the Platte at Denver, along the proposed route from Denver, westward to the Pass:

Places.	Distance.	Elevation.
Platte river, at Denver. ....	.0 miles.	0.
Divide between Denver and Golden City..	7.5 "	544.
Golden City.....	5.0 "	500.
Ten miles up the Cañon.....	10.0 "	1580.
Where Idaho road enters valley of Clear Creek. ....	6.8 "	2019.
Idaho.....	5.2 "	2395.
Forks of Clear Creek below Empire City..	7.3 "	3117.
Georgetown. ....	4.0 "	3519.
Entrance of Tunnel.....	12.0 "	4820.
Total distance from Denver.....		57.8 "

In entering the Cañon of Clear Creek, either from Denver or the mouth of Clear Creek, the road can go into the Cañon from one to five hundred feet above the water of the creek, if a better line can be found at such elevation.

Of the cost of construction of a railroad from Golden City to the entrance of the tunnel, I cannot, of course, make an estimate upon this reconnaissance, but should say the expense would not be greater than the average of eastern mountain roads for the same distance.

In making this reconnaissance, I am under obligations to Mr. John Pierce, of Denver, a railroad engineer, of many years experience, for his volunteer services on the survey. Mr. F. W. Beebe, of Idaho, another very good engineer, and former acquaintance of mine in Ohio, ran the levels from Empire City over the pass. Mr. W. L. Campbell, of Empire City, formerly an engineer on the Clinton Line Railroad, in Ohio, ran the transit line over the Pass.

Hoping these few facts may be of service to you and the Board of Corporators of the Pacific Railroad. I am,

Very truly, your obedient servant,

FRANCIS M. CASE,  
Snr. Genl. Col. and Utah.



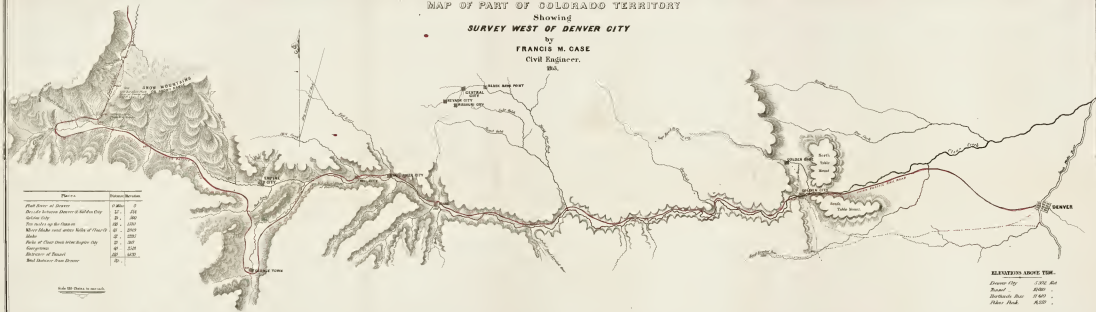
Map  
Cot.

# UNION PACIFIC RAIL ROAD

## MAP OF PART OF COLORADO TERRITORY

Showing  
SURVEY WEST OF DENVER CITY

by  
FRANCIS M. CASE  
Civil Engineer.  
B.S.



Place	Distance	Elevation
Platte River at Denver	0 Miles	0
Divide between Denver & Golden City	17	774
Golden City	25	360
Ten miles up the Canon	35	1300
Where Platte road enters Valley of Clear Fork	41	2709
Idaho	42	2251
Peak of Clear Fork from Golden City	45	307
Georgetown	49	2518
Division of Survey	50	3432
End Distance from Denver	50	

Scale 10 Miles to an inch

### ELEVATIONS ABOVE SEA.

Denver City	5356	Feet
Lead	6000	"
Northfork River	5960	"
Platte River	6120	"







